

# GROWTH & DIVERSIFICATION PLAN



**AUGUST  
2017**

## REVISION LOG

Changes made to this document are captured in the chart below.

[illegible]

# TABLE OF CONTENTS

<b>REVISION LOG.....</b>	<b>2</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>7</b>
<b>INTRODUCTION .....</b>	<b>10</b>
GO VA: VIRGINIA INITIATIVE FOR GROWTH AND OPPORTUNITY.....	10
REGION ONE OVERVIEW.....	10
GROWTH AND DIVERSIFICATION PLAN.....	11
METHODOLOGY OF REGION ONE'S PLAN.....	11
<b>QUANTITATIVE DATA ANALYSIS: CHMURA ECONOMICS &amp; ANALYTICS 1</b>	<b>3</b>
ABOUT CHMURA ECONOMICS & ANALYTIC	
<b>BACKGROUND.....</b>	<b>14</b>
LABOR SHED.....	15
<b>ECONOMIC LANDSCAPE.....</b>	<b>15</b>
DEMOGRAPHICS .....	16
Population.....	16
Labor Force Participation.....	18
Educational Attainment.....	19
Income and Poverty.....	19
Entrepreneurship Trends.....	20
Wage Differentials by Cluster and Region.....	22
DRIVERS OF GROWTH: INDUSTRY STRUCTURE.....	24
Employment.....	24
Industry Mix.....	24
Manufacturing Sector.....	25
Industry Clusters.....	28
Energy Cluster.....	31
Unemployment Rate.....	33
Top 20 Regional Industries.....	33
Building on Region's Export Industries.....	38
Innovation.....	38
OCCUPATIONS.....	39
EDUCATION.....	43
GAPS .....	45
Current Gaps .....	45
Projected Gaps.....	48
<b>POTENTIAL INDUSTRY TARGETS.....</b>	<b>55</b>
ADVANCED MANUFACTURING .....	55
Chemical Manufacturing .....	56
Transportation Equipment Manufacturing .....	58

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Plastics and Rubber Products Manufacturing .....	60
Electrical Equipment, Appliance, and Component Manufacturing .....	61
FOOD AND BEVERAGE MANUFACTURING.....	62
Animal Slaughtering and Processing.....	63
Food Manufacturing .....	64
ENERGY AND MINERALS.....	64
INFORMATION TECHNOLOGY.....	68
Computer Systems Design (Cybersecurity).....	70
Data Centers.....	72
<b>EXISTING PLANS &amp; INITIATIVES .....</b>	<b>74</b>
ANALYSIS OF EXISTING REGIONAL STRATEGIC PLANS.....	75
EXISTING REGIONAL INITIATIVES.....	84
Education and Workforce.....	84
Entrepreneurship and Innovation.....	85
Downtown Revitalization.....	85
Infrastructure.....	86
GO VA REGION ONE MAP.....	87
<b>COMMUNITY &amp; STAKEHOLDER ENGAGEMENT.....</b>	<b>88</b>
COMMUNITY SURVEY.....	88
REGIONAL CONVERSATIONS.....	89
<b>SWOT ANALYSIS OF TARGET INDUSTRIES.....</b>	<b>90</b>
Advanced Manufacturing – A sector strategy .....	90
Food Manufacturing: A sector strategy.....	93
Energy and Minerals – A sector strategy.....	95
Information Technology – Information and Emerging Technologies.....	97
<b>REGION ONE STRATEGIES .....</b>	<b>99</b>
FOCUS AREAS.....	100
Educational Alignment.....	100
Talent Recruitment and Retention.....	101
Leadership Development.....	102
Infrastructure.....	103
Innovation and Scaleup Support.....	104
Proposal Evaluation Overview.....	106
PLAN IMPLEMENTATION.....	106
Transitioning from SWVA Economic Forum Action Teams to GO VA Working Groups .....	106
GO Virginia Region One – Communication Strategy.....	107
<b>APPENDIX 1: LABOR SHED.....</b>	<b>109</b>
NUMBER OF RESIDENTS COMMUTING TO GO VA REGION ONE.....	110
NUMBER OF RESIDENTS COMMUTING FROM GO VA REGION ONE.....	111
<b>APPENDIX 2: CLUSTER DEFINITIONS.....</b>	<b>112</b>



## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>APPENDIX 3: REGIONAL VARIATIONS BY PLANNING DISTRICT .....</b>	<b>116</b>
LENOWISCO.....	116
CUMBERLAND PLATEAU.....	118
MOUNT ROGERS.....	122
<b>APPENDIX 4: TRANSFERABLE JOBS FROM COAL MINING .....</b>	<b>125</b>
<b>APPENDIX 5: REGIONAL HIGH SCHOOL GRADUATION RATES.....</b>	<b>127</b>
<b>APPENDIX 6: GO VA REGION ONE COMMUNITY SURVEY RESULTS .....</b>	<b>128</b>
<b>APPENDIX 7: REGIONAL CONVERSATIONS RECAP.....</b>	<b>145</b>
<b>APPENDIX 8: LIST OF STRATEGIC PLANS REVIEWED.....</b>	<b>153</b>
<b>APPENDIX 9: HUB ZONE MAP.....</b>	<b>154</b>



### **Region One Vision**

Southwest Virginia is a vibrant and robust region with a diversified and growing population and economy.

### **Region One Mission**

We make investments in our assets: human, community, natural, and structural. Our diversification plan guides our investments to grow new clusters and strengthen emerging and existing industries.

# EXECUTIVE SUMMARY

While the origins for the economic challenges facing the Commonwealth of Virginia and its citizens often vary by region, the harsh actuality of the difficulties is undisputed. The Virginia Initiative for Growth and Opportunity (GO VA) was established as an important tool to help regions tailor solutions to their unique economic situations with the ultimate goal of creating additional higher-paying jobs in a sustainable environment, improving the economic situation and outlook for all Virginians.

Realizing the importance of an economic renaissance in the region, the GO VA Region One Council welcomed the opportunity that the development of this Growth and Diversification Plan provided to offer a new, resilient path to economic renewal throughout Southwest Virginia.

As a first step, the Region One Council and staff surveyed nineteen (19) different strategic plans, economic blueprints, and similar products from across the region and labor shed, to consider existing ideas and strategies for economic prosperity. A consultant – Chmura Economics and Analytics – was engaged to conduct a thorough quantitative analysis of the region's demographics, workforce and economic data, pinpointing strengths, weaknesses, and potential industrial gaps, to inform the strategic outcomes of the Plan.

In addition, a citizen survey was opened online to assess the opinions and ideas of the region's residents in terms of the economic conditions and future of Southwest Virginia. At the same time, regional meetings, or conversations, were held in each of the Region One planning districts to elicit and foment ideas and strategies for the economic challenges facing the area.

While each district has uniqueness, the review of existing strategic plans found many similarities, including common difficulties such as alarming demographic trends and workforce challenges, but also collective agreement on strategies such as targeting industries like advanced manufacturing, information technology, federal contracting, and food processing.

The citizen survey heralded the overall sense of urgency for an economic reset in Southwest Virginia as it showed that a quarter of the people living in the region are considering relocation, primarily due to the economic conditions of the area. Such an event would only exacerbate what is already considered the number one challenge facing Southwest Virginia – a dwindling population.

Each regional conversations built upon the previous one, resulting in six strategic goals that the participants believed should be considered in formulating the Growth and Diversification Plan. They were:

1. Strengthen existing leadership and foster next generation leadership.
2. Cultivate entrepreneurs, and support and diversify existing businesses.
3. Develop regional collaboration for workforce and education (including K-12) and expand, market and grow regional educational resources.
4. Leverage broadband infrastructure to promote the ability to work remotely and grow information technology (IT) infrastructure and technology hubs.
5. Create a new identity for the region as a "culture of wellness" and promote the region's high quality of life, assets, and amenities through marketing and telling positive stories of the region.
6. Coordinate and focus workforce programs to align with industry and economic development targets.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Utilizing all of these resources -- a thorough analysis of the existing economic landscape with the strategic plan review and the Chmura analytical report, coupled with thoughtful conversations and interactions with the people of the region led to a series of targeted industries that the Region One Council believes could signal a new age of high wages, job opportunities, and an evolving, lively Southwest Virginia economic landscape. These targeted industries are:

- Advanced Manufacturing
- Agriculture and Food and Beverage Manufacturing
- Information and Emerging Technologies
- Energy and Minerals

In addition, the Plan offers some specific strategies for each initiative that would both support existing local companies and entrepreneurs, helping them to flourish in the new SWVA Economy, as well as promote investment and location of prospective industries. These strategies of implementation underpin all four of the targeted industries and they fall into the following categories:

- Talent Development: Education, Workforce and Leadership Capacity
- Entrepreneurship and Innovation
- Infrastructure

The key foundation to a diversification plan for Region One is strategic investments in developing a workforce with industry recognized credentials and meaningfully engaging employers in the workforce conversations. The Plan focuses equal attention on supporting existing industry as well as recruitment of new operations to the area. In taking this approach, GO VA 1 will intentionally focus upon existing businesses that possess opportunities for expanding, growing product and market opportunities.

Cultivating such innovation is a cornerstone of the GO VA 1 Plan as is building the region's capacity for leadership. The exchange of ideas and conversations held during the development of this Plan was a great sample of the type of leadership needed and proved to be one of the most valuable benefits of the entire process. Further engagement and development of active leaders in the region going forward will be a focal point for the Council.

Southwest Virginia's challenges are complex and multi-faceted and require resourceful solutions. By utilizing elusive qualities such as the aforementioned innovative thinking and leadership development, the results needed for an economic resurgence in the region are achievable. However, as has been emphasized throughout the process, growing and diversifying the area economy must be embraced as a marathon, not a sprint! Correspondingly, the Region One Council believes that this blueprint is a great first step in the birth of a new era in the economic history of Southwest Virginia.

# GROWTH & DIVERSIFICATION PLAN VISUAL GUIDE

The chart below provides a guide with color codes for each of the main sections of the Plan. This will assist readers in easily navigating between sections.

<b>INTRODUCTION</b>	
<b>QUANTITATIVE DATA ANALYSIS</b>	
<b>POTENTIAL INDUSTRY TARGETS</b>	
<b>EXISTING PLANS &amp; INITIATIVES</b>	
<b>COMMUNITY &amp; STAKEHOLDER ENGAGEMENT</b>	
<b>REGION ONE STRATEGIES</b>	
<b>PLAN IMPLEMENTATION</b>	
<b>APPENDIX</b>	

## INTRODUCTION

### GO VA: Virginia Initiative for Growth and Opportunity

Acknowledging the increasing vulnerability of the Virginia economy due to its deep ties to federal government spending and the overall lack of economic diversity throughout the Commonwealth, The Virginia Initiative for Growth and Opportunity (GO VA) was created by the passage of legislation during the 2016 General Assembly session. The objective of the GO VA initiative is the promotion of private sector job growth, creation, and diversification across the Commonwealth, emphasizing high wage careers, and utilizing targeted incentives and regional collaboration across all segments of the job market.

As part of the authorizing legislation, a 24 member governing Board, composed of private sector business leaders, legislators, and members of the Governor's Cabinet, presides over the administration of the program with Virginia's Department of Housing and Community Development (DHCD) serving as the program administrator.

Recognizing the vastness and variances of the economic landscape across Virginia, the Commonwealth is divided into nine regions, with each region having its own Regional Council. These councils, much like the statewide Board, are comprised of leaders across many sectors of the economic and workforce development landscape, with the majority of the council mandated to be private business leaders.

### Region One Overview

Region One (GO VA 1) comprises thirteen counties and three cities in far southwest Virginia with an estimated population of just over 393,000 at the time of organization, making Region One among the least populated of the GO VA regions. While it would not be accurate to portray all of GO VA 1 as rural, it is generally characterized by mountainous terrain with many small towns and communities dotting the landscape and transportation challenges in many locales.

Much of GO VA 1 has been dependent upon natural resources – such as coal, timber, and natural gas – as its economic base for many generations, enjoying economic growth during boom times but enduring extreme economic difficulties during primary industry contractions.

***Echoing one of the forces behind the formation of GO Virginia, the economic leaders of the region have identified the volatility of relying upon a single source economy – regardless of what industry it may be – and are embracing the creation of a varied and robust economic base for its citizenry.***



### Growth and Diversification Plan

One of the first major tasks each regional council is charged with is developing a growth and diversification plan. This growth and diversification plan will be used to “identify economic opportunities, needs, and challenges, establish priorities among those opportunities, and outline needed enhancements where GO VA grant funds can support collaborative programs between at least two or more localities that will lead to the creation of additional higher paying jobs.”<sup>1</sup>

GO VA 1 is embracing the challenge and opportunity offered through the development of this plan as it can be **a catalyst in re-orienting the regional economy in a manner that allows far southwest Virginia to not only weather economic downturns in a hardy manner but also establishing a resolute and vigorous job market, providing a brighter economic future for this generation and those to follow.** \*

### Methodology of Region One’s Plan

Following the recommendations of the GO VA Economic Growth and Diversification Plan Guidelines, Region One developed a multidimensional blueprint to build its own growth and diversification plan.

One of the first tasks in establishing a baseline for the Plan was to consider strategic plans already developed by economic and workforce development organizations throughout the region. The intent of this exercise was to look for similar priorities already identified and acknowledged as critical for the region's economic future. fourteen strategic plans all written within the past 5 years were examined and charted to pinpoint commonalities. (See list of studies examined in Appendix.)

While this strategic plan analysis was ongoing, the Council wanted to ensure all individuals and organizations from across the wide geographic range of GO VA 1 were given ample opportunity to provide input and ideas in the formulation of the Plan.

The first approach to solicit public input was the development of an online survey which was offered openly to anyone interested in providing feedback for the Council. In addition to quantifiable survey questions, there were also several opportunities for respondents to provide comments. The survey was promoted through social media as well as in regional newspapers. (See survey results in Appendix.)

The importance of this effort to revitalize the Southwest Virginia economy was evident in the survey results. **Nearly ¼ of the respondents are considering relocating out of the area**, with the most often cited catalyst for that consideration being (a) better job opportunity and (b) quality of life. Eighty-three percent (83%) of the respondents rated “employment growth” as poor or very poor and **ninety-two percent (92%) believe that the opportunity for high wage jobs is poor or very poor.**

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\* “Growth and Diversification Plan Guidelines”, Virginia Department of Housing and Community Development

## GO VA Region One – Growth & Diversification Plan (August, 2017)

In addition, the Council organized three regional conversations, one in each planning district within Region One, with a structured facilitation of an exchange of dynamic ideas and strategies that would be used to inform the Plan. These three conversations were held in Duffield, Lebanon, and Marion over a two-day period with each outcome building upon the previous. (See summary in Appendix.)

Finally, Region One contracted with Chmura Economics and Analytics (Chmura) to conduct a thorough quantitative analysis of the region's economic and workforce data. Chmura's multifaceted analyses considers the demographic trends of the region, the economic landscape, and both existing and projected "gaps" in occupations and skills that are critical to support economic growth in Region One.

All of these efforts worked in concert with one another and provided extensive quantitative and qualitative data to drive the priorities, strategies, and implementation infrastructure within this Plan with ***the goal of strengthening, diversifying, and setting the Southwest Virginia economy on a new course.***

## QUANTITATIVE DATA ANALYSIS: CHMURA ECONOMICS & ANALYTICS

### About Chmura Economics & Analytics

We have a data-driven culture. We are a group of published scientists contributing to innovations with big data analytics on the forefront of applied economics and technology solutions. We have a very diverse team of people with backgrounds such as PhD economists, statisticians, computer scientists, and transformation strategists. We serve a cross section of decision makers from the defense, government, public, and private sectors.

As data scientists, we help our clients quickly answer big data questions. We provide a reliable picture of economic trends on both a macro and micro level. Our clients rely on the historical, current, and predictive market reports we provide to cut through the confusing information they receive daily from the media, politicians, and industry resources.

Our clients view us as trusted economic advisors because we help them mitigate risk and prepare for growth by understanding the why, the how, and the what about their local economy. As the nation's preferred provider of labor market data, we help our clients understand both the demand for and the supply of available data. Our clients benefit from our expertise by better understanding their own bottom line costs, sustainability issues, and associated risks.

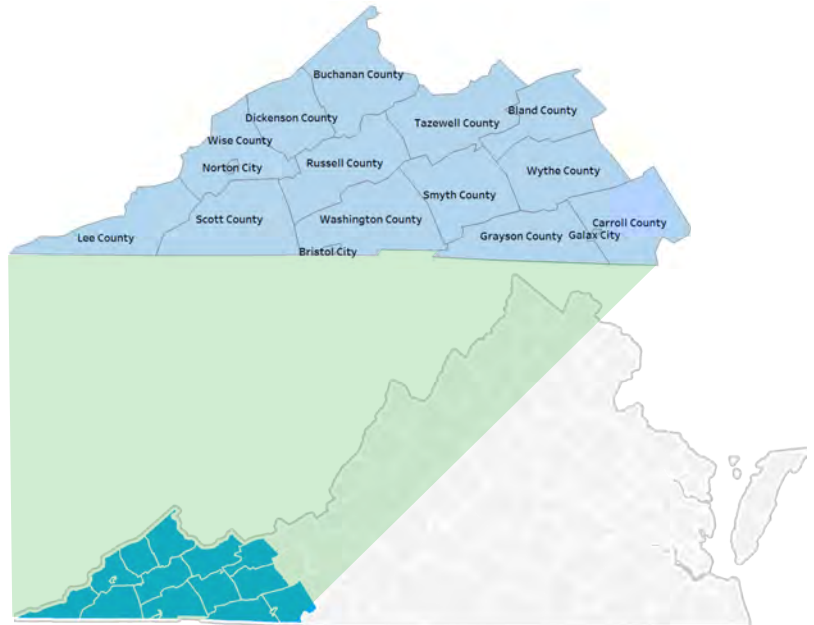
## BACKGROUND

GO VA 1, located in the most southwest corner of the state, is mainly rural and has **the weakest economic growth of all the GO VA regions in the state** based on its 0.9% employment decline in the four quarters ending with the second quarter of 2016. By comparison, employment grew 0.9% in the state and 1.5% in the nation over the same period.

The Appalachian Mountains run through many of the 13 counties and 3 cities that comprise the region. The beauty of the mountains along with the rural amenities of the region also bring the challenges of a sparsely populated area where mountains can make navigation difficult to connect residents with jobs.

The natural resources of the mountains have historically made coal mining one of the highest paying industries in the region. At an annual wage of \$79,546 in the four quarters ending with the first quarter of 2017, coal mining pays more than double the regional average wage of \$33,865. Regulatory and environmental concerns as well as cheaper alternatives such as natural gas have led to a loss of 2,592 coal mining jobs in the region since the third quarter of 2012. An estimated 2,230 people worked in the coal mining industry in GO VA 1 in the first quarter of 2017.

Manufacturing, another high-paying sector at \$43,514 for the first quarter of 2017, has struggled over the last few decades as productivity gains and offshoring have reduced the number of jobs, but employment has stabilized since the Great Recession ended. Fifteen years ago, manufacturers employed more than 26,000 people in the GO VA 1 region, but employment in the sector steadily declined through the first quarter of 2010 (two quarters after the end of the Great Recession), shedding more than 9,300 jobs.



Since then, employment has leveled off around 18,000; manufacturing employment has risen as high as 18,137 in 2012 and now stands at 17,025 in the first quarter of 2017.

No other major industry sectors have added enough jobs to replace both those lost over the past year and decade in GO VA 1. Like many rural areas across the nation where the relatively small number of firms leads to the lack of alternative opportunities, workers displaced due to firm relocations, closings, or layoffs often must take lower-paying jobs that do not fully utilize their skills.

From an economic well-being perspective, the loss of coal mining and manufacturing is particularly hard on this region's economy. Mining and manufacturing are exporting industries that bring new dollars into the region when products are sold to consumers and businesses that are outside the region. These new dollars provide profits and wages to owners and workers in the region who spend some of that money in the region, thereby increasing the demand for products and services provided by local service industries (or "non-export" industries) such as retail stores, restaurants, and real estate.

### Labor Shed

The GO VA 1 region borders on four states that provide job opportunities for residents of GO VA 1. From an economic development perspective, the adjoining counties are home to firms that GO VA 1 should consider as cluster and supply chain assets. For example, EASTMAN Chemical Company and Domtar paper mill in Kingsport, Tennessee (Sullivan County) should be highlighted with prospect firms that are considering locating to the southwest portion of GO VA 1. Likewise, Pike County, Kentucky, should be included in discussions with prospects in energy-related businesses.

As shown in the accompanying map, commuting patterns indicate that three counties in Tennessee, and one each in Kentucky, West Virginia, and North Carolina have enough migration in and out of the GO VA 1 region to warrant inclusion in the GO VA 1 labor shed. The location of Interstate 81 that runs through the region also provides easy access for some residents to commute northeast. Consequently, the GO VA 1 labor shed includes six additional Virginia localities.\* Including Virginia and other states, the twelve additional localities are:

- City of Roanoke, Virginia
- City of Salem, Virginia
- Hawkins County, Tennessee
- Mercer County West Virginia
- Montgomery County, Virginia
- Pike County, Kentucky
- Pulaski County, Virginia
- Radford City, Virginia
- Roanoke County, Virginia
- Sullivan County, Tennessee
- Surry County, North Carolina
- Washington County, Tennessee



Employment in the GO VA 1 labor shed fared better than the GO VA 1 region in the last year, growing 0.2% for the four quarters ending with the third quarter of 2016. The labor shed is slightly less dependent on coal mining (0.6% percent versus 1.6% in GO VA 1) and manufacturing (11.3% vs 12.2% in GO VA 1).

The remainder of this report analyzes the demographics, industry and occupation structure, and education and training alignment in the GO VA 1 region and labor shed with emphasis on strengths, weaknesses, opportunities, and threats that can lead to employment growth, economic and workforce diversification, and higher paying jobs for the region.

## ECONOMIC LANDSCAPE

Employment in the Go VA 1 region has been almost continuously declining since the Great Recession. Manufacturing, an important driver in the region, has shed jobs nationally since the 1990s and locally

\* A detailed explanation of the methodology used to create the GO VA 1 labor shed is in Appendix

## GO VA Region One – Growth & Diversification Plan (August, 2017)

since at least 2002; however, in an encouraging sign, employment in manufacturing has stabilized over the last few years. Employment in another important driver in the region—the energy cluster (particularly coal mining)—has been in decline since 2011.

Both the manufacturing sector and energy clusters pay a higher average wage in the GO VA 1 region than the average for all industries in the region. Unfortunately, displaced workers from these sectors are unlikely to find alternative employment in the region that pays comparable or higher wages. The result is that some people have left the region, leading to population and labor force declines as well as the loss of talent and skills.

### Demographics

The demographics of GO VA 1 depict a rural area that is struggling to grow. The GO VA 1 labor shed is more than 3 times larger than GO VA 1 and has a growing population with generally higher educational attainment.

#### Population

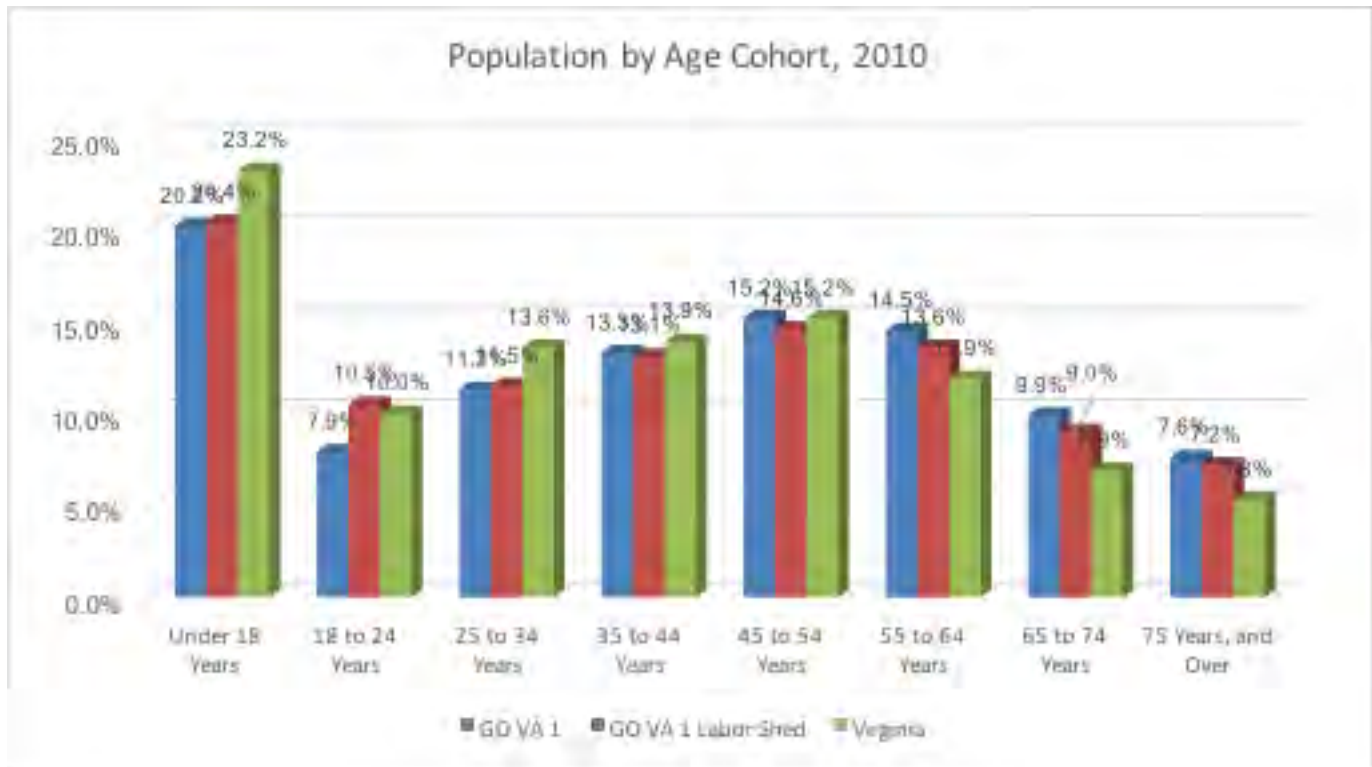
About 385,000 people lived in the Go VA 1 region in 2016 according to the Census Bureau—an annual average decrease of 0.4% since 2006. Looking ahead, ***projections in JobsEQ anticipate the region will contract an annual average 0.2% a year through 2027—a loss of 8,119 people.***

The larger GO VA 1 labor shed was home to almost 1.3 million people in 2016, and it has expanded an annual average 0.1% since 2000. Population in the labor shed is projected to grow an average 0.2% per year through 2027 for an addition of 29,450 residents. Population growth in the state of Virginia and the nation are both expected to increase an annual average 0.8% over the same period.

The age cohorts in GO VA 1 are skewed toward a lower percentage of younger individuals when compared to the region's labor shed and the state, to some extent due to the presence of Virginia Tech in the labor shed but also presumably because some of the younger residents leave the region for better job opportunities. In the GO VA 1 region, 19.2% of the population is aged 18 to 34 years, compared with 22.0% in the labor shed and 23.6% in the state. In contrast, 17.5% of the population in GO VA 1 is 65 years and older compared with 16.2% in the labor shed and 12.2% in Virginia.



## GO VA Region One – Growth & Diversification Plan (August, 2017)



The population in GO VA 1 lacks diversity by race, which may be a concern to some larger firms that strive for a diversified workforce. Almost 96% of the population in GO VA 1 was white according to the 2010 Census, compared with 91.0% in the labor shed and 68.8% in the state.

Demographic Summary <sup>1</sup>						
	Percent			Value		
	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia
<b>Demographics</b>						
Population <sup>6</sup>	—	—	—	385,045	1,288,379	8,411,808
Population Annual Average Growth <sup>6</sup>	-0.4%	0.1%	0.9%	-1,457	1,249	73,808
Median Age <sup>2,4</sup>	—	—	—	42.9	40.6	37.5
Under 18 Years <sup>4</sup>	20.2%	20.4%	23.2%	81,259	265,574	1,853,677
18 to 24 Years <sup>4</sup>	7.9%	10.5%	10.0%	31,796	136,564	802,099
25 to 34 Years <sup>4</sup>	11.3%	11.5%	13.6%	45,468	150,050	1,090,419
35 to 44 Years <sup>4</sup>	13.3%	13.1%	13.9%	53,581	169,798	1,108,928
45 to 54 Years <sup>4</sup>	15.2%	14.6%	15.2%	61,217	189,593	1,214,000
55 to 64 Years <sup>4</sup>	14.5%	13.6%	11.9%	58,396	177,059	954,964
65 to 74 Years <sup>4</sup>	9.9%	9.0%	6.9%	39,654	116,571	549,804
75 Years, and Over <sup>4</sup>	7.6%	7.2%	5.3%	30,374	94,014	427,133
Race: White <sup>4</sup>	95.5%	91.0%	68.6%	383,615	1,182,433	5,486,852
Race: Black or African American <sup>4</sup>	2.5%	5.1%	19.4%	10,024	66,566	1,551,399

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Demographic Summary <sup>1</sup>						
	Percent			Value		
	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia
Race: Asian <sup>4</sup>	0.3%	1.2%	5.5%	1,361	15,076	439,890
Race: Native Hawaiian and Other Pacific Islander <sup>4</sup>	0.0%	0.0%	0.1%	75	320	5,980
Race: Some Other Race <sup>4</sup>	0.6%	1.1%	3.2%	2,425	13,929	254,278
Race: Two or More Races <sup>4</sup>	0.9%	1.4%	2.9%	3,538	18,077	233,400
Hispanic or Latino (of any race) <sup>4</sup>	1.5%	2.5%	7.9%	5,903	31,857	631,825

Source: [JobsEQ®](#)

1. ACS 2011-2015, unless noted otherwise

2. Median values for certain aggregate regions (such as MSAs) may be estimated as the weighted averages of the median values from the composing counties.

3. 2016; Current Population Survey, unionstats.com, and Chmura; county- and zip-level data are best estimates based upon industry-, MSA-, and state-level data

4. Census 2010

5. Disconnected Youth are 16-19 year olds who are (1) not in school, (2) not high school graduates, and (3) either unemployed or not in the labor force.

6. Census 2016, annual average growth rate since 2006

### Labor Force Participation

The labor force participation rate in GO VA 1 is relatively low when compared to the state, perhaps in part because job opportunities are not as plentiful but also because a higher percentage of the population has disabilities and a lower percentage of those with disabilities are working. The labor force participation rate of the civilian population 16 years and over in GO VA 1 was 51.3% according to the American Community Survey (ACS), 2011-2015 compared with 55.1% in the labor shed and 64.7% in the state.

The percentage of the population with a disability in GO VA 1 is more than double that of the state at 19.6% for individuals age 18-64 according to the ACS, 2011-2015. On the other hand, only 26.4% of individuals with disabilities in GO VA 1 participate in the labor force compared to 42.6% in the state.

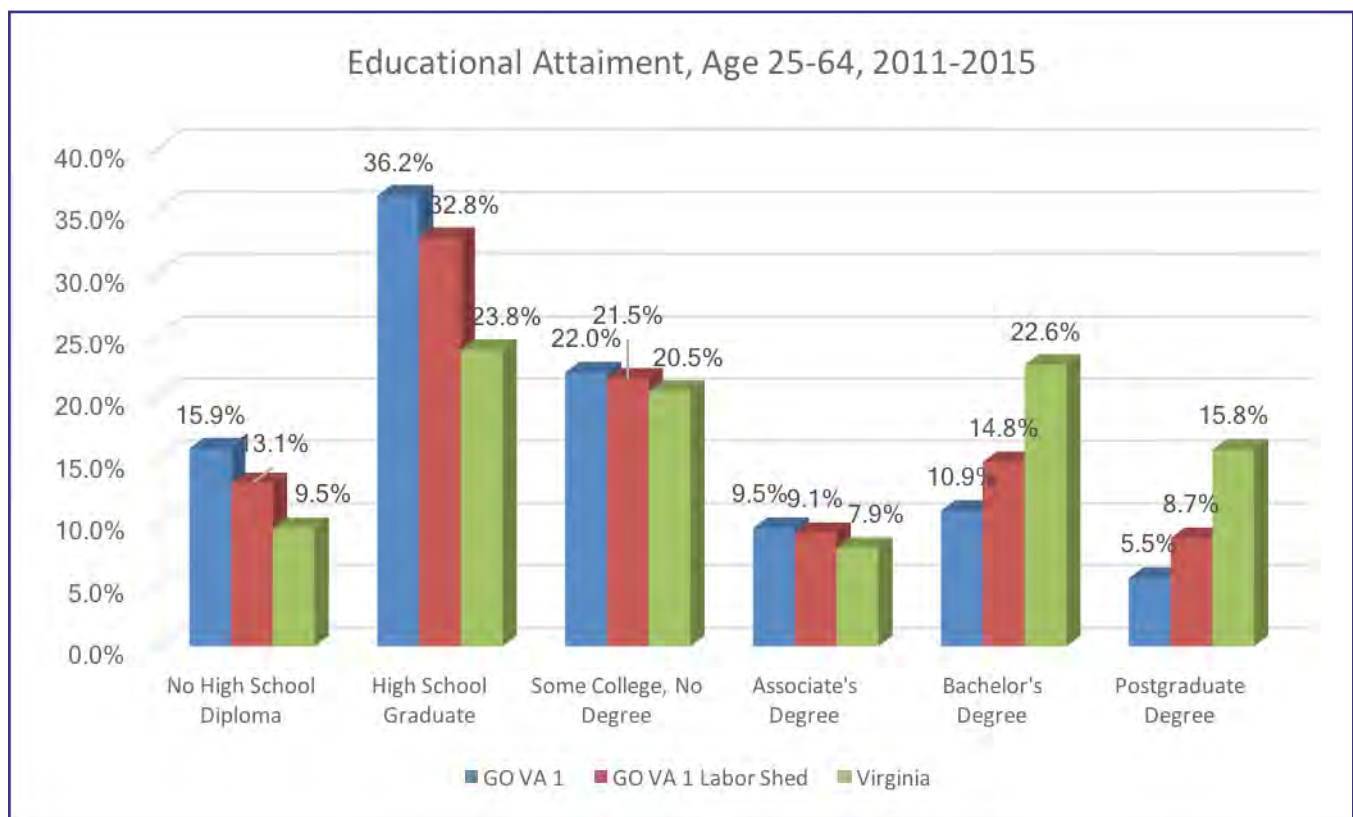
Demographic Summary <sup>1</sup>						
	Percent			Value		
	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia
<b>Economic</b>						
Labor Force Participation Rate and Size (civilian population 16 years and over)	51.3%	55.1%	64.7%	167,890	589,832	4,266,800
Armed Forces Labor Force	0.1%	0.1%	1.7%	252	923	109,986
Veterans, Age 18-64	4.8%	5.7%	8.8%	11,711	46,206	454,935
Mean Commute Time (minutes)	—	—	—	24.6	22.1	27.9
Commute via Public Transportation	0.5%	1.1%	4.6%	757	5,774	183,183
Union Membership <sup>3</sup>	4.1%	5.1%	4.6%	—	—	—
<b>Social</b>						
Enrolled in Grade 12 (% of total population)	1.2%	1.2%	1.3%	4,758	15,076	109,737
Disconnected Youth <sup>5</sup>	2.3%	2.2%	2.1%	408	1,536	9,091
Children in Single Parent Families (% of all children)	33.6%	34.2%	31.3%	24,064	82,440	556,588

## GO VA Region One – Growth & Diversification Plan (August, 2017)

With a Disability, Age 18-64	19.6%	16.9%	9.1%	46,164	134,778	464,695
With a Disability, Age 18-64, Labor Force Participation Rate and Size	26.3%	30.5%	42.6%	12,152	41,089	198,136
Foreign Born	1.5%	3.1%	11.7%	5,811	40,744	966,601
Speak English Less Than Very Well (population 5 yrs and over)	0.8%	1.6%	5.6%	3,167	20,061	435,851

### Educational Attainment

Educational attainment in the GO VA 1 region falls short of that in the labor shed and state. Nearly 16% of the population in GO VA 1 does not have a high school diploma compared with 13.1% in the labor shed and 9.5% in the state. Similarly, a high school diploma is the highest educational attainment level for 36.2% of GO VA 1 residents compared with 32.8% in the labor shed and 23.8% in Virginia. At the other end of the spectrum, only 10.9% of GO VA 1 residents possess a bachelor's degree and another 5.5% have postgraduate degrees compared with 14.8% and 8.7% in the labor shed and 22.6% and 15.8%, respectively in the state.



### Income and Poverty

The relatively low per capita income and higher poverty level in GO VA 1 reflects a lack of employment opportunities in the region relative to other areas in the state. Per capita income is \$21,473 in GO VA 1 according to ACS, 2011-2015 compared to \$23,410 in the labor shed and \$34,152 in Virginia. During the same period, 19.2% of all people in GO VA 1 were below the poverty level compared with 18.9% in the labor shed and 11.5% in the state. Similarly, 18.1% of households in the GO VA 1 region received food stamps compared with 16.6% in the labor shed and 9.7% in the state.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Demographic Summary						
	Percent			Value		
	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia	GO VA Region 1	GO VA Region 1 Labor Shed	Virginia
<b>Economic</b>						
Median Household Income*	—	—	—	\$36,755	\$40,685	\$65,015
Per Capita Income	—	—	—	\$21,473	\$23,410	\$34,152
Poverty Level (of all people)	19.2%	18.9%	11.5%	73,317	236,840	921,822
Households Receiving Food Stamps	18.1%	16.6%	9.7%	28,960	87,617	295,767

### Entrepreneurship Trends

***Small business start-ups are an important source of job creation in a regional economy, spurring innovation and competition and driving productivity growth.*** Research from the National Bureau of Economic Research<sup>1</sup> indicates that the age of a business matters more than the size for job creation—young firms are more volatile, showing higher rates of both job creation due to rapid growth as well as higher rates of job destruction due to failures and exit.

Jobs created by small companies contributed to 39.4% of job creation in GO VA 1 in 2015, above their average contributions in Virginia (36.4%), and in the United States (36.2%). The 2015 percentage contribution is an increase from 34.6% in 2010. Localities with the highest contributions from small companies are Grayson (69.1%), Carroll (57.0%), and Dickenson (50.4%). Localities with the lowest contributions from small companies include Norton (23.5%), Bristol (27.3%), and Bland (31.6%).

\* Who Creates Jobs? Small vs. Large vs. Young, <http://www.nber.org/papers/w16300.pdf>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### GO VA 1: Average Quarterly Small Firm (0-19 Employees) Job Creation

	2000 Average	2010 Average	2015 Average	2000 as a % of Total	2010 as a % of Total	2015 as a % of Total
<b>US</b>	<b>2,736,015</b>	<b>2,152,248</b>	<b>2,260,292</b>	<b>34.5%</b>	<b>36.0%</b>	<b>36.0%</b>
<b>Virginia</b>	<b>65,095</b>	<b>56,625</b>	<b>54,683</b>	<b>30.8%</b>	<b>29.8%</b>	<b>36.4%</b>
<b>Region 1</b>	<b>3,023</b>	<b>2,328</b>	<b>1,963</b>	<b>39.3%</b>	<b>34.6%</b>	<b>39.4%</b>
Bland	37	23	20	55.7%	29.6%	31.6%
Buchanan	217	140	103	48.8%	41.0%	41.9%
Carroll	194	156	163	51.8%	47.1%	57.0%
Dickenson	99	83	66	45.8%	56.4%	50.4%
Grayson	80	86	66	56.2%	70.5%	69.1%
Lee	140	95	93	55.2%	42.3%	43.8%
Russell	186	123	122	50.4%	40.3%	45.6%
Scott	103	80	59	43.2%	38.3%	37.6%
Smyth	215	190	156	35.0%	43.2%	33.9%
Tazewell	358	279	226	41.2%	35.0%	41.9%
Washington	467	405	302	41.3%	36.8%	33.9%
Wise	319	221	147	39.8%	26.4%	42.4%
Wythe	247	198	190	42.7%	34.7%	40.8%
Bristol city	182	125	125	17.2%	15.2%	27.3%
Galax city	122	71	89	39.9%	32.3%	43.5%
Norton city	59	55	37	26.3%	29.8%	23.5%

Source: US Census Bureau, LEHD, QWI

Jobs created by young companies (5 years old or less) contributed 23.3% of total job creation in GO VA 1 in 2015. This represents an increase from 22.3% in 2010, but a decrease from 2000 (30.2%). In comparison, the percent contribution of job creation for young firms in Virginia increased from 22.6% in 2010 to 26.2% in 2015. The areas with the highest percentage contributions to job creation from young companies are Galax (34.2%), Scott (32.5%), and Grayson (32.5%).

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### GO VA 1: Average Quarterly Young Firm (5 Years Young or Less) Job Creation

	2000 Average	2010 Average	2015 Average	2000 as a % of Total	2010 as a % of Total	2015 as a % of Total
<b>US</b>	<b>2,390,076</b>	<b>1,432,821</b>	<b>1,638,228</b>	<b>30.2%</b>	<b>24.0%</b>	<b>26.1%</b>
<b>Virginia</b>	<b>58,935</b>	<b>42,890</b>	<b>39,288</b>	<b>27.9%</b>	<b>22.6%</b>	<b>26.2%</b>
<b>Region 1</b>	<b>2,320</b>	<b>1,498</b>	<b>1,161</b>	<b>30.2%</b>	<b>22.3%</b>	<b>23.3%</b>
Bland	22	24	14	33.7%	31.3%	21.9%
Buchanan	125	65	39	28.1%	19.1%	16.0%
Carroll	121	118	92	32.4%	35.7%	32.1%
Dickenson	85	55	24	39.4%	37.4%	18.5%
Grayson	70	55	31	49.5%	45.2%	32.5%
Lee	94	67	48	37.2%	30.0%	22.6%
Russell	123	62	67	33.3%	20.1%	25.1%
Scott	74	43	51	31.0%	20.4%	32.5%
Smyth	259	118	105	42.2%	26.9%	22.7%
Tazewell	235	165	144	27.1%	20.7%	26.7%
Washington	363	211	146	32.1%	19.1%	16.4%
Wise	242	142	73	30.3%	17.0%	21.0%
Wythe	193	102	137	33.4%	18.0%	29.4%
Bristol city	206	176	99	19.4%	21.3%	21.6%
Galax city	70	41	70	22.9%	18.9%	34.2%
Norton city	38	55	23	16.7%	30.0%	14.5%

Source: US Census Bureau, LEHD, QWI

### Wage Differentials by Cluster and Region

The annual average wage in GO VA 1 was \$33,864 for the four quarters ending with the first quarter of 2017 for the 139,464 people employed in the region. Forty-six percent of the workers or 63,123 people in GO VA 1 are employed in occupations that pay above-average wages in 2017Q1.

There are significant differences within the target sectors of the percentage of people earning above-average wages. For example, about 26% of workers in food and beverage manufacturing are employed in occupations that pay wages above the regional average, compared with about 82% of workers in the energy cluster. These preliminary baseline measures are summarized in the table below.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Cluster Employment for 4 Quarters Ending 2017 Quarter 1

Cluster	Occupations with above-average wages	Total -- All Occupations	Percent Paying Above-Average Wages
Energy	3,182	3,884	82%
Food and Beverage Manufacturing	104	434	24%
Advanced Manufacturing	7,864	16,998	46%
Information Technology	2,134	2,134	100%
Total--All Occupations	63,123	139,464	45%

Source: JobsEQ

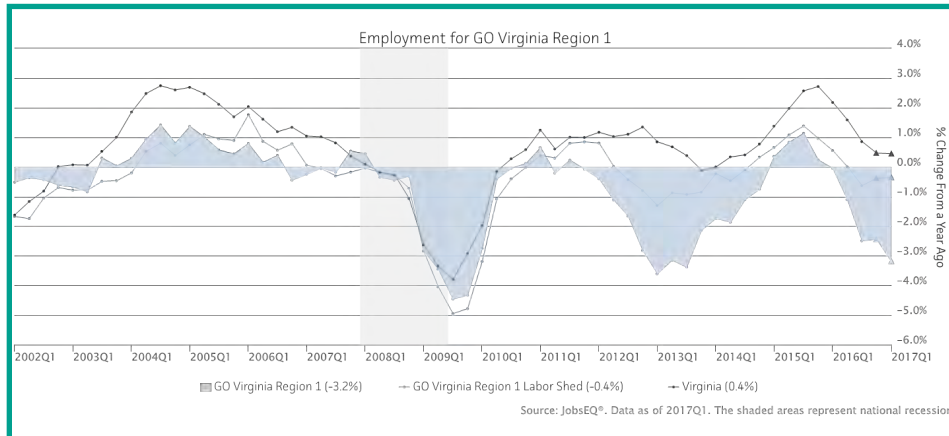
The three cities and 13 counties in the GO VA One region have a wide range of employment and wages. The largest county--Washington County— has nearly ten times the employment (22,364) as the smallest locality—Bland County (2,396). Buchanan County has the highest average annual wage (\$41,376) in the region, mostly due to its high concentration of mining. The lowest wage is \$27,452 in Grayson County. The annual average wage in seven of the counties and cities in Go VA 1 is less than that of the region (shaded red in the table below).

Four Quarters Ending with 2017Q1		
Region	Employment	Average Annual Wages per Worker
Washington County, Virginia	22,364	\$35,095
Tazewell County, Virginia	15,127	\$31,981
Smyth County, Virginia	13,468	\$33,875
Wythe County, Virginia	12,436	\$32,931
Wise County, Virginia	11,781	\$33,472
Bristol City, Virginia	9,513	\$38,102
Russell County, Virginia	7,917	\$36,880
Carroll County, Virginia	7,203	\$29,285
Buchanan County, Virginia	6,738	\$41,376
Galax City, Virginia	6,385	\$29,734
Scott County, Virginia	5,550	\$28,075
Lee County, Virginia	5,177	\$30,164
Norton City, Virginia	3,658	\$36,959
Dickenson County, Virginia	3,360	\$36,077
Grayson County, Virginia	3,156	\$27,452
Bland County, Virginia	2,396	\$40,384
<b>GO VA Region 1</b>	<b>136,230</b>	<b>\$33,865</b>
Source: JobsEQ		

### Drivers of Growth: Industry Structure

#### Employment

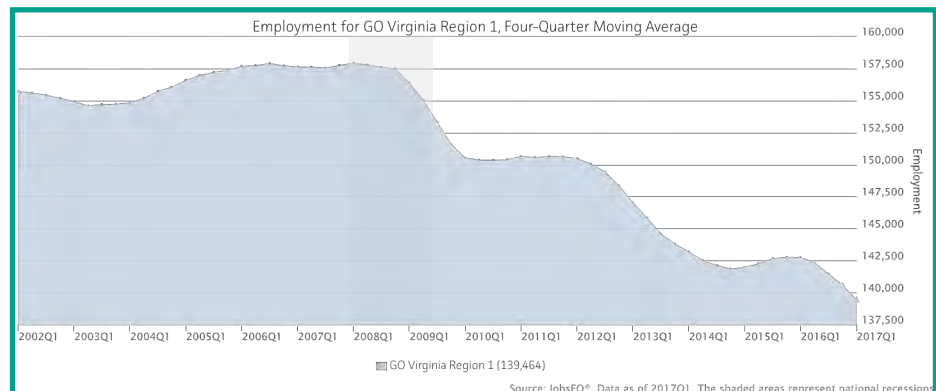
Similar to the nation, GO VA 1 experienced a sharp decline in employment during the Great Recession. In the four quarters ending with the third quarter of 2009, employment was down 4.5% from a year earlier in GO VA 1 compared with a 5.0% loss in the labor shed and 3.8% in the state over the same period.



**Unlike the state and nation where employment has risen beyond pre-recession peak levels, employment in GO VA 1 has continued to contract.**

In the first quarter of 2008, at the start of the recession, 157,933 people were employed in the GO VA 1 region. Employment has since dropped by 18,469 workers (or 11.7%) to a total of 139,464 employed in the first quarter of 2017.

Employment in the GO VA 1 labor shed also remains below its previous peak level prior to the Great Recession. Employment peaked at 598,848 in the first quarter of 2007 in the labor shed, dropping by 32,988 jobs (or 5.5%) to 565,860 in the first quarter of 2017.



#### Industry Mix

The job decline in GO VA 1 over the last decade is mainly driven by a secular decline in manufacturing employment due mainly to productivity growth and offshoring. Manufacturers shed 9,364 employees between 2002 and 2017. The construction sector and coal mining industry each also shed over 3,000 jobs during the same period. The loss in construction jobs is partially caused by the ripple effect from a contraction in manufacturing as well as coal mining, which has been a more recent phenomenon caused by increased regulation over environmental concerns. Smaller employment losses occurred in most of the other major sectors such as retail trade and finance and insurance that were adversely impacted when manufacturers and coal mines reduced employment.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

In fact, employment contracted in all the major sectors in GO VA 1 since 2002 except for the following: accommodation and food services; administrative and support and waste management and remediation services; educational services; health care and social assistance; management of companies and enterprises; and professional, scientific, and technical services.

NAICS	Industry	Industry Mix, 2017					
		Region One		Labor-Shed		Virginia	
		Employment	GDP	Employment	GDP	Employment	GDP
11	Agriculture, Forestry, Fishing and Hunting	3.6%	1.0%	1.5%	0.5%	0.8%	0.3%
21	Mining, Quarrying, and Oil and Gas Extraction	2.4%	7.9%	0.9%	2.6%	0.1%	0.3%
22	Utilities	0.7%	1.8%	0.6%	1.5%	0.5%	1.4%
23	Construction	5.1%	4.9%	5.6%	4.7%	5.8%	4.5%
31	Manufacturing	12.2%	20.3%	11.3%	19.7%	6.1%	9.1%
42	Wholesale Trade	2.2%	2.8%	2.8%	4.3%	2.8%	4.1%
44	Retail Trade	13.9%	8.8%	12.9%	7.7%	10.8%	5.4%
48	Transportation and Warehousing	3.7%	4.1%	3.8%	3.8%	3.8%	3.3%
51	Information	1.2%	1.4%	1.3%	1.9%	1.9%	3.6%
52	Finance and Insurance	2.1%	2.1%	2.8%	3.2%	3.5%	5.4%
53	Real Estate and Rental and Leasing	0.8%	6.2%	1.1%	9.6%	1.6%	14.3%
54	Professional, Scientific, and Technical Services	3.1%	2.9%	3.7%	3.5%	11.1%	12.7%
55	Management of Companies and Enterprises	1.0%	1.3%	1.6%	1.6%	1.8%	2.4%
56	Administrative and Support and Waste Management and Remediation Services	4.5%	2.9%	5.4%	2.8%	6.3%	3.7%
61	Educational Services	8.4%	7.2%	9.4%	8.5%	8.9%	6.9%
62	Health Care and Social Assistance	14.7%	10.6%	16.3%	13.6%	12.3%	7.7%
71	Arts, Entertainment, and Recreation	1.2%	0.6%	1.2%	0.6%	2.0%	0.8%
72	Accommodation and Food Services	7.9%	2.8%	8.9%	3.0%	8.5%	2.5%
81	Other Services (except Public Administration)	4.0%	2.3%	4.4%	2.2%	5.0%	2.5%
92	Public Administration	7.1%	8.1%	4.4%	4.6%	6.1%	8.7%

Source: JobsEQ.

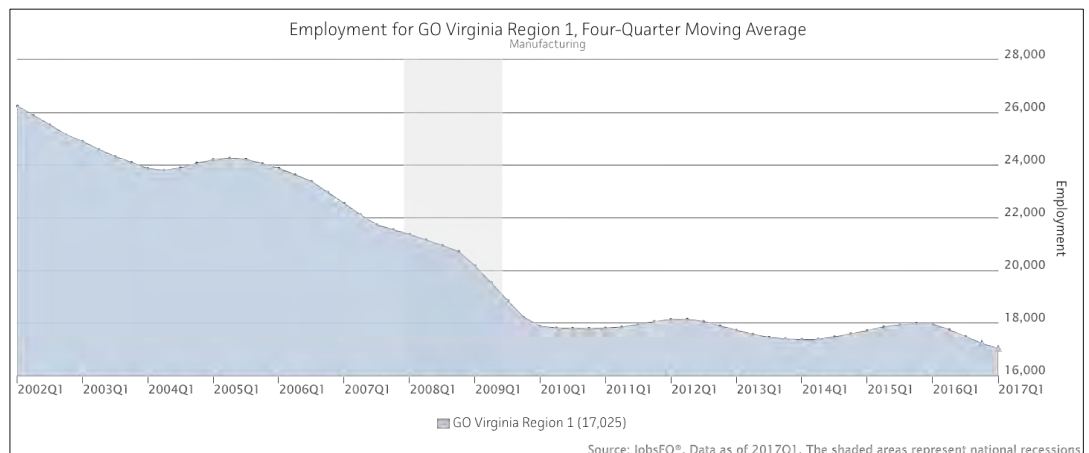
The decline in manufacturing is particularly bad for the region's economy because it provides jobs for a large share of the economy. As shown in the industry mix table, manufacturers in GO VA 1 provided 12.2% of all employment in the region in 2017 compared with 11.3% in the labor shed and 6.1% in the state. However, the value added provided by manufacturing is so large that this sector makes up 20.3% of GO VA 1's gross domestic product (GDP).

### Manufacturing Sector

More detailed

information is provided about the manufacturing sector due to its importance to the region's economy.

As noted previously, manufacturing employment in the GO VA 1 region has struggled over the last few decades but its employment has stabilized since the Great Recession ended. In the first quarter of 2002, manufacturers employed 26,238 people in the GO VA 1 region and shed 9,364 jobs through the period ending with the first quarter of 2010 (two quarters after the end of the Great Recession). Since then, manufacturing employment has risen as high as 18,137 in 2012 and now stands at 17,025 in the first quarter of 2017.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

As shown in the table below, 13 of the 21 manufacturing industries in GO VA 1 lost jobs over the last five years. The largest job losses were in machinery manufacturing, with a decrease of 1,064 jobs, followed by fabricated metal products which declined by 625 jobs.

The four manufacturing industries that added more than 100 employees over the past five years are:

- Transportation equipment (+989 jobs),
- Wood products (212),
- Furniture and related products (127), and
- Food (109).

Even though manufacturing jobs in GO VA 1 are expected to decline by 2,551 due to net contractions in employment, **3,652 manufacturing jobs will need to be filled in the region over the next decade** as individuals currently in those positions retire or move to alternative occupations.

Industry Snapshot, Manufacturing in GO VA 1											
		Current			Historical				Forecast		
		Four Quarters Ending with 2017q1			Total Change over the Last 5 Years	Average Annual % Change in Employment 2012q1-2017q1			Over the Next 10 Years		
NAICS	Industry	Empl	Avg. Annual Wages	Location Quotient	Empl	GO VA Region 1	GO VA Region 1 Labor Shed	USA	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
311	Food	451	\$34,454	0.31	109	5.7%	0.7%	1.3%	110	-30	-0.7%
312	Beverage and Tobacco Product	935	\$48,729	4.07	-15	-0.3%	1.5%	6.1%	228	-44	-0.5%
313	Textile Mills	534	\$35,904	5.14	-45	-1.6%	-2.2%	-1.2%	142	-149	-3.2%
314	Textile Product Mills	77	\$21,089	0.71	-20	-4.4%	-7.2%	-0.4%	18	-30	-4.8%
315	Apparel	416	\$22,953	3.08	-57	-2.5%	-3.3%	-2.9%	93	-232	-7.8%
316	Leather and Allied Product	1	\$21,862	0.03	1	n/a	1.7%	-0.2%	0	0	-4.5%
321	Wood Product	1,278	\$31,308	3.40	212	3.7%	2.6%	2.9%	238	-137	-1.1%
322	Paper	47	\$35,322	0.14	-3	-1.3%	1.6%	-0.9%	9	-10	-2.3%
323	Printing and Related Support Activities	160	\$25,981	0.37	2	0.3%	-1.9%	-1.0%	33	-43	-3.1%
324	Petroleum and Coal Products	73	\$81,383	0.71	-35	-7.6%	-5.8%	-0.1%	18	-13	-2.0%
325	Chemical	829	\$49,885	1.11	-270	-5.5%	0.3%	0.8%	192	-178	-2.4%
326	Plastics and Rubber Products	1,427	\$53,183	2.23	60	0.9%	1.9%	2.0%	316	-279	-2.2%
327	Nonmetallic Mineral Product	775	\$35,423	2.05	-52	-1.3%	-1.0%	2.2%	162	-158	-2.2%
331	Primary Metal	137	\$38,866	0.40	-32	-4.1%	-3.0%	-1.1%	30	-29	-2.3%
332	Fabricated Metal Product	1,122	\$46,381	0.86	-625	-8.5%	-1.5%	0.7%	248	-90	-0.8%
333	Machinery	1,856	\$47,250	1.89	-1,064	-8.7%	-4.7%	-0.1%	390	-180	-1.0%

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Industry Snapshot, Manufacturing in GO VA 1											
		Current			Historical				Forecast		
		Four Quarters Ending with 2017q1			Total Change over the Last 5 Years	Average Annual % Change in Employment 2012q1-2017q1			Over the Next 10 Years		
NAICS	Industry	Empl	Avg. Annual Wages	Location Quotient	Empl	GO VA Region 1	GO VA Region 1 Labor Shed	USA	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
334	Computer and Electronic Product	336	\$40,524	0.35	-78	-4.1%	-5.8%	-1.2%	64	-72	-2.4%
335	Electrical Equipment, Appliance, and Component	1,149	\$51,603	3.28	-319	-4.8%	-1.9%	0.7%	227	-188	-1.8%
336	Transportation Equipment	3,749	\$42,149	2.47	968	6.2%	4.1%	2.9%	755	-398	-1.1%
337	Furniture and Related Product	1,328	\$31,865	3.60	127	2.0%	-2.0%	2.1%	238	-216	-1.8%
339	Miscellaneous	343	\$32,685	0.58	28	1.7%	1.3%	0.5%	71	-76	-2.5%
31	Manufacturing	17,025	\$43,514	1.48	-1,106	-1.3%	-0.3%	0.9%	3,652	-2,551	-1.6%
	Total - All Industries	139,464	\$33,865	1.00	-11,009	-1.5%	-0.1%	1.7%	33,025	-6,261	-0.5%

Source: JobsEQ® Data as of 2017Q1

The trends in manufacturing employment are similar in the GO VA 1 labor shed. Employment in 12 of the 21 manufacturing industries in the labor shed contracted over the past five years. The following six industries added more than 100 employees:

- Transportation equipment (+1,737 jobs)
- Plastics and rubber products (423)
- Wood products (341)
- Chemicals (157)
- Miscellaneous (141)
- Beverage and tobacco products (125)

While manufacturing jobs in the labor shed are expected to decline by 9,186 due to net contractions in employment, 13,754 manufacturing jobs are expected to open in the region over the next decade as individuals currently in those positions retire or move to alternative occupations.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Industry Clusters

Clusters represent a geographic concentration of interrelated industries. **When clusters possess a location quotient (LQ)\* of 1.25 or greater they are said to possess a competitive advantage that makes it easier to attract like firms** because suppliers, skilled labor, and training providers presumably reside in the area. (A region can have a competitive advantage in a growing or declining industry.)

Of the 22 industry clusters\* shown in the table and graphic below, GO VA 1 has a competitive advantage in 9 of them and the labor shed has a competitive advantage in 7 clusters.

**Clusters with a competitive advantage are highlighted in green in the next table.** The cluster with the largest LQ is energy (3.20) followed by textile/leather manufacturing (2.82), wood/paper manufacturing (2.80), and agriculture (2.33) in the GO VA 1 region.\* Not all clusters that have a competitive advantage in the GO VA 1 have a competitive advantage in the GO VA 1 labor shed and vice versa. For example, the LQ of the agriculture cluster is 2.33 in the GO VA 1 region but only 1.01 in the GO VA 1 labor shed.

Many of the clusters are in manufacturing industries and are associated with future employment declines, but also possess a much higher annual average wage than that of the overall region.

\* The location quotient (LQ) is a measure of the relative size of an industry in a region compared to the average size in the nation. An LQ of 1.0 indicates an industry is the same size in the region as is average in the nation; an LQ of 2.0 means the industry is twice as large in the region compared to average; and an LQ of 1/2 indicates the industry is half as large regionally as average in the nation. By formula, the location quotient is the ratio of an industry's share of total employment within the region to the same industry's share of employment in the nation.

$$LQ = \frac{\text{Employment in industry } I \text{ in area } J / \text{Total employment in area } J}{\text{U.S. employment in industry } I / \text{Total U.S. employment}}$$

\* Definitions of industry clusters can be found in Appendix 2.

\* The agriculture data do not include all family farms (since unemployment insurance quarterly returns are not required by all family farms). Thus, the LQ for agriculture in a region may be understated if the area contains a significant number of family farms.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Industry Clusters as of 2017Q1						
Industry Group	GO VA 1			GO VA 1 Labor Shed		
	Average Annual Employment Forecast Rate (%) 2017Q1-2027Q1	Average Wages	Location Quotient	Average Annual Employment Forecast Rate (%) 2017Q1-2027Q1	Average Wages	LQ
Textile/Leather Mfg.	-4.98	\$21,582	2.82	-4.89	\$32,007	2.14
Food Mfg.	-0.55	\$44,677	0.89	-0.73	\$39,456	0.56
Agricultural	-1.34	\$12,231	2.33	-1.22	\$16,661	1.01
Chemical	-2.37	\$49,966	2.31	-1.98	\$69,498	3.29
Wood/Paper	-1.57	\$30,387	2.80	-1.31	\$38,874	1.49
Electric/Electronics Mfg.	-1.89	\$47,236	1.24	-1.49	\$58,388	1.34
Media	-1.29	\$24,536	0.61	-1.72	\$35,954	0.61
Auto/Auto-related Mfg.	-0.82	\$36,434	2.26	-0.58	\$41,010	1.43
Machinery Mfg.	-1.17	\$44,497	1.21	-1.12	\$48,954	0.88
Metal & Product Mfg.	-1.07	\$41,796	1.26	-0.78	\$47,842	1.14
Energy	-1.62	\$71,666	3.20	-1.59	\$71,255	1.46
Retail	-0.39	\$26,229	1.09	-0.11	\$30,210	1.06
Professional Svc.	-0.02	\$39,647	0.57	0.32	\$43,269	0.73
Consumer Svc.	-0.47	\$19,005	0.78	-0.08	\$19,902	0.90
Education	-0.73	\$28,653	0.98	-0.18	\$34,946	1.09
Financial Svc.	-0.79	\$39,166	0.53	-0.22	\$52,294	0.71
Construction	0.14	\$34,789	0.95	0.72	\$42,361	1.02
Freight Transportation	-1.54	\$48,362	0.99	-1.02	\$51,147	1.06
Utilities	-0.34	\$35,765	1.95	-0.07	\$41,228	1.25
Public Administration	-1.04	\$39,031	1.48	-0.66	\$42,260	0.93
Health	0.92	\$36,510	1.04	1.13	\$48,985	1.15
<a href="#">Source: JobsEQ®</a>						

Industry Clusters for GO Virginia Region 1 as of 2017Q1



Industry Clusters for GO Virginia Region 1 Labor Shed as of 2017Q1



Notes: The LQ = 1.25 cluster in the bottom right corner of the chart is being shown for reference purposes, denoting the threshold size of competitive advantage. The horizontal line through the mid-section of the chart represents the average wage in the region.

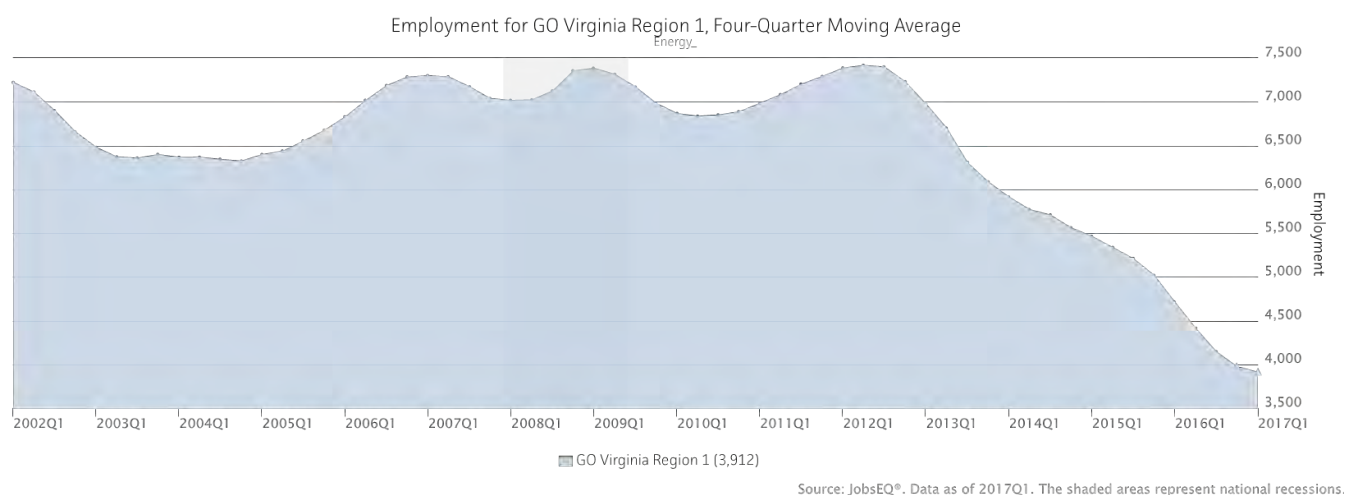
## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Energy Cluster

Additional detail about the energy cluster is provided here due to its importance to the GO VA 1 region's economy. This cluster pays a higher wage (\$71,666 in GO VA 1 and \$71,255 in GO VA 1 labor shed) than the average for all industries in the region.

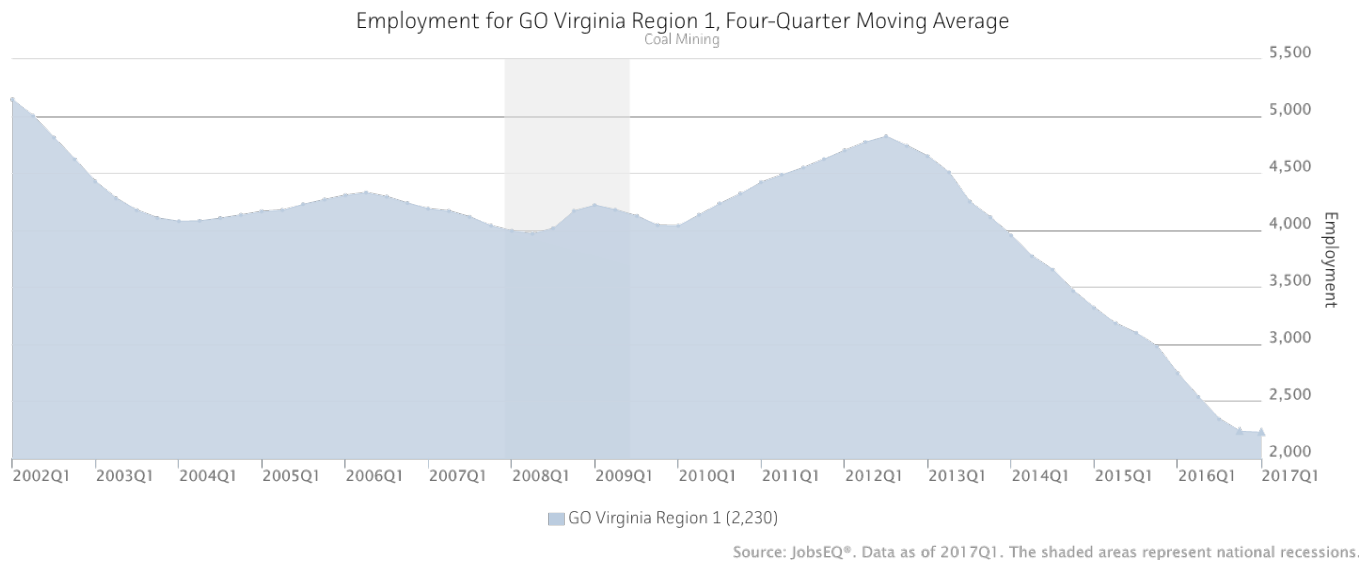
The full definition of the energy cluster can be found in Appendix 2. In general, the energy cluster is defined as coal mining, crude petroleum and natural gas extraction, power generation, and natural gas extraction.

Despite gaining workers during the Great Recession, the energy cluster has declined since 2012. Employment in the energy cluster peaked at 7,417 in the second quarter of 2012 in GO VA 1 and has since fallen by 3,505 jobs to 3,912 in the first quarter of 2017. The GO VA 1 labor shed shows a similar trend. Energy cluster employment peaked at 14,663 in the first quarter of 2009 and fell by 7,448 jobs to 7,215 in the first quarter of 2017.



Coal mines employ 57.0% of the energy cluster employees in the region and have seen more severe declines than the cluster overall. Similar to the energy cluster, the coal mining industry added jobs during the Great Recession. However, over the last five years, employment in coal mining has steadily declined by over 50%. The region's coal mining employment fell from a ten-year peak of 4,822 workers in the third quarter of 2012 to 2,230 in the first quarter of 2017. The GO VA 1 labor shed shows an even more severe decline of nearly 60% from the post-recession peak of 8,358 in the second quarter of 2012 to 3,410 workers in the first quarter of 2017.

## GO VA Region One – Growth & Diversification Plan (August, 2017)



The decline in coal mining employment over the past five years has largely occurred at underground mines. Five years ago, underground mines employed 3,001 workers compared to 1,659 people working on surface mines in the GO VA 1 region. Underground mining employment has declined an annual average rate of 23% for the past five years while surface mines have declined at a rate of 4.1% on average in the region. Though underground mines were the primary coal mining employers in the region five years ago, surface mines now employ most of the coal miners in the region and labor shed.

As shown in the table below, with an average annual wage of \$79,546, coal mining pays a much higher wage than the \$33,865 average for the region based on the four quarters ending with the first quarter of 2017. Consequently, when coal miners lose their jobs, they have a larger ripple impact on the regional economy because of their reduced purchasing power. In conjunction with manufacturing, job losses in these relatively high paying positions lead to reduced sales at regional establishments such as retailers, restaurants, and doctors' offices. Appendix 4 examines potential high-wage job opportunities for those currently employed in coal mining occupations.

Industry Snapshot, Coal Mining in GO VA 1											
		Current			Historical				Forecast		
		Four Quarters Ending with 2017q1			Change: Last 5 Years	Average Annual % Change in Employment 2012q1-2017q1			Over the Next 10 Years		
NAICS	Industry	Empl	Avg. Annual Wages	Location Quotient	Empl	GO VA Region 1	GO VA Region 1 Labor Shed	USA	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
212111	Bituminous Coal and Lignite Surface Mining	1,348	\$59,699	65.24	-311	-4.1%	-7.9%	-10.3%	258	-255	-2.1%
212112	Bituminous Coal Underground Mining	823	\$92,063	37.29	-2,178	-22.8%	-22.2%	-12.8%	157	-166	-2.2%
212113	Anthracite Mining	59	\$57,861	81.19	19	8.2%	8.1%	-5.5%	11	-12	-2.3%
2121	Coal Mining	2,230	\$79,546	51.31	-2,470	-13.9%	-16.3%	-11.6%	426	-433	-2.1%
	Total - All Industries	139,464	\$33,865	1.00	-11,009	-1.5%	-0.1%	1.7%	33,025	-6,261	-0.5%
Source: JobsEQ® Data as of 2017Q1											

Source: JobsEQ® Data as of 2017Q1

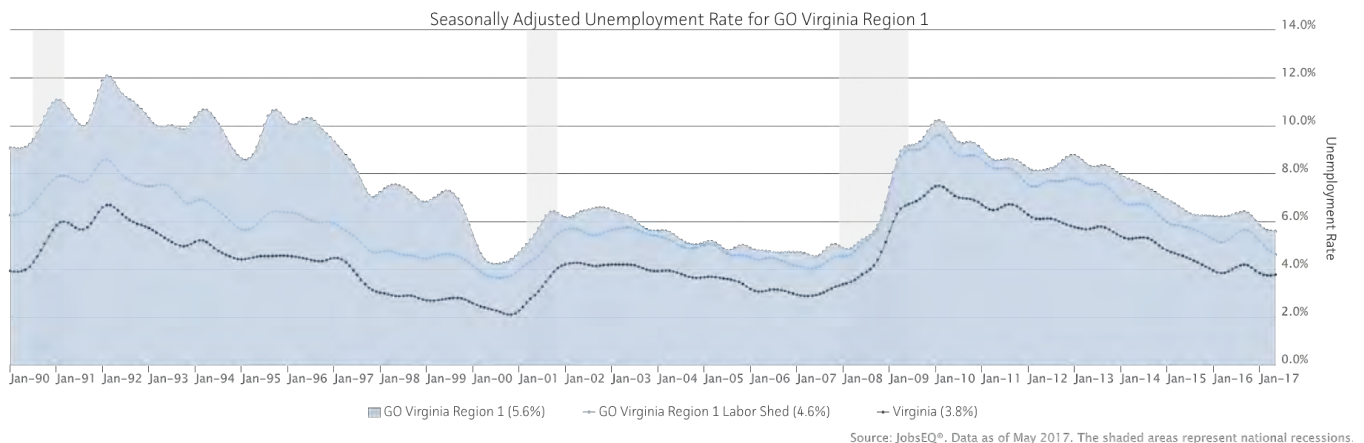
## GO VA Region One – Growth & Diversification Plan (August, 2017)

Looking ahead, employment at coal mines is expected to decline at an annual average pace of 2.1% over the next decade. The expected continued decline is due to several factors:

- Although President Trump signed an executive order to dismantle the Clean Power Plan coal production is not expected to rise significantly because of lower cost natural gas and renewable fuel sources that can be used to generate electricity.\* From the perspective of the electric utility firm, using coal or an alternative fuel source is based on profitability over long-term business plans.\*
- There is currently a modest uptick in metallurgical coal for producing steel. The market for metallurgical coal is small relative to the kind of coal used in electricity generation, which is the biggest use for coal.\* As history has shown, many analysts expect the demand for metallurgical coal to drop off in the future.\*
- An increase in coal output does not necessarily translate into increased employment due to productivity gains\* and the usage of overtime.

### Unemployment Rate

The high unemployment rate in the GO VA 1 region reflects its relatively weak economy when compared to its labor shed and the state of Virginia. The unemployment rate in GO VA 1 has been higher than its labor shed and the state since at least 1990. As of May 2017, the seasonally adjusted GO VA 1 unemployment rate was 5.6% compared to 4.6% in the labor shed and 3.8% in the state.



### Top 20 Regional Industries

Analyzing the region's largest industries at the four-digit North American Industry Classification System (NAICS) level provides a deeper dive into the products and services that are driving the regional

- \* <https://www.nytimes.com/2017/03/28/business/energy-environment/trump-coal-executive-order-impact.html>
- \* See, for example: [http://www.cleveland.com/business/index.ssf/2009/11/american\\_municipal\\_power\\_will.html](http://www.cleveland.com/business/index.ssf/2009/11/american_municipal_power_will.html)
- \* <http://www.npr.org/2017/06/02/531255253/fact-check-is-president-trump-correct-that-coal-mines-are-opening>
- \* <https://www.forbes.com/sites/mergermarket/2017/03/01/uncertainty-burns-hot-for-us-coal/#7a02e3f251ec>  
<https://www.eia.gov/todayinenergy/detail.php?id=29472>
- \* <https://siepr.stanford.edu/research/publications/what-killing-us-coal-industry>

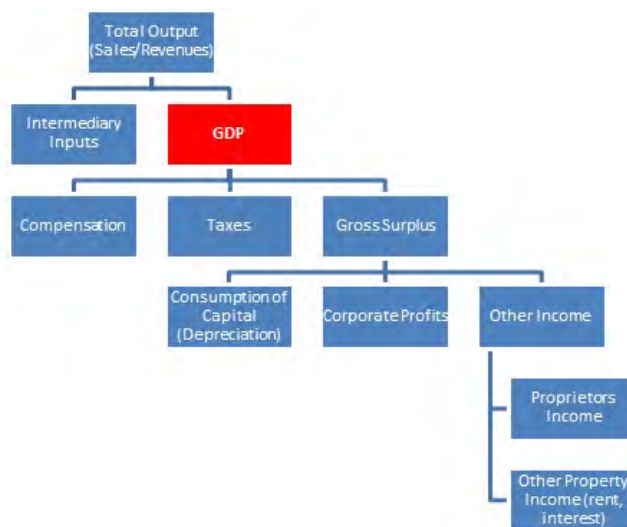
## GO VA Region One – Growth & Diversification Plan (August, 2017)

economy. The industries shown in bold type in the following tables are considered export industries that bring new wealth into the region.

The top 20 four-digit NAICS industries are ranked based on the GO VA 1 labor shed by gross domestic product (GDP), employment, and location quotient. The labor shed was used to rank industries in the following tables because it represents the broader area of opportunity for GO VA 1 residents (in terms of jobs) and economic developers (in terms of attracting similar industries).

### Gross Domestic Product (GDP)

GDP is the final output from products and services produced in any region during a specific time and provides the broadest measure of economic performance. The difference between GDP and total output/sales in a region is that GDP does not include intermediary inputs—products and services used as inputs to produce other products and services. For that reason, GDP is considered the “value added” portion of total output. As shown in the figure below, the main components of GDP are compensation (wages, including salaries and benefits), gross surplus,\* and business taxes.



The top 20 GDP-producing industries in the GO VA 1 labor shed produce 42% of total GDP in the region and provide compensation for residents as well as taxes for localities. Seven of those industries export their goods and services outside the region. Four of the top twenty industries are in manufacturing; the non-manufacturing export industries among the top twenty are colleges, universities, and professional schools; coal mining; and management of companies and enterprises. All

the exporting industries in the region provide wages above the region's average (\$33,865) and labor shed's average (\$39,272).

The majority of the top 20 GDP industries in the GO VA 1 labor shed are non-export industries that tend to grow or decline coincident with the region's economy. These include health care, elementary and secondary schools, real estate, restaurants, retail stores, and construction.

\*Gross surplus is made up of consumption of capital (depreciation), corporate profits, and other income (including proprietor's income, and other property income such as rents and interest). Self-employment income falls under the gross surplus portion of GDP rather than the compensation portion of GDP.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Top 20 Industries by Gross Domestic Product in GO VA 1 and Labor Shed													
		Current (Four Quarters Ending with 2017Q1)						Employment Forecast Over the Next 10 Years					
		GDP (\$millions, as of 2016)		Employment		Average Annual Wages		Total Approx. Repl. Demand		Total Growth Demand		Avg. Annual Growth Percent	
NAICS	Industry	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed
6221	General Medical and Surgical Hospitals	\$181	\$2,926	3,107	31,174	\$42,033	\$61,883	569	5,865	-155	154	-0.5%	0.0%
6111	Elementary and Secondary Schools	\$595	\$2,282	8,915	30,891	\$30,015	\$35,877	1,864	6,663	-818	-980	-1.0%	-0.3%
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	\$120	\$2,210	461	6,992	\$52,725	\$87,939	119	1,825	-88	-1,199	-2.1%	-1.9%
5313	Activities Related to Real Estate	\$197	\$1,754	217	1,852	\$36,626	\$41,683	51	445	34	387	1.5%	1.9%
6113	Colleges, Universities, and Professional Schools	\$122	\$1,727	1,471	17,061	\$42,740	\$45,569	276	3,246	-33	135	-0.2%	0.1%
6211	Offices of Physicians	\$306	\$1,551	2,970	13,394	\$69,912	\$83,395	603	2,764	323	1,980	1.0%	1.4%
5312	Offices of Real Estate Agents and Brokers	\$240	\$1,483	215	1,254	\$42,378	\$44,522	36	213	-51	-254	-2.7%	-2.2%
5311	Lessors of Real Estate	\$175	\$1,315	245	1,697	\$26,069	\$35,261	51	359	-39	-198	-1.7%	-1.2%
7225	Restaurants and Other Eating Places	\$242	\$1,168	9,445	43,640	\$14,349	\$15,021	3,321	15,645	-475	-509	-0.5%	-0.1%
2121	Coal Mining	\$686	\$965	2,230	3,410	\$79,546	\$76,815	426	652	-433	-660	-2.1%	-2.1%
9221	Justice, Public Order, and Safety Activities	\$487	\$960	4,965	9,192	\$42,255	\$45,926	1,259	2,377	-581	-729	-1.2%	-0.8%
5511	Management of Companies and Enterprises	\$142	\$821	1,428	8,801	\$75,954	\$69,390	292	1,845	-95	-130	-0.7%	-0.1%
9211	Executive, Legislative, and Other General Government Support	\$199	\$753	2,711	9,953	\$31,078	\$35,487	613	2,286	-165	-292	-0.6%	-0.3%
4411	Automobile Dealers	\$95	\$648	1,021	6,403	\$39,574	\$48,021	271	1,738	-13	224	-0.1%	0.3%
3121	Beverage Manufacturing	\$388	\$637	935	1,711	\$48,755	\$46,206	229	421	-44	-66	-0.5%	-0.4%
3259	Other Chemical Product and Preparation Manufacturing	\$72	\$606	327	2,622	\$41,541	\$57,106	73	610	-85	-512	-3.0%	-2.2%
5221	Depository Credit Intermediation	\$123	\$567	1,621	6,000	\$38,054	\$47,795	415	1,567	-193	-483	-1.3%	-0.8%
2382	Building Equipment Contractors	\$82	\$534	1,159	7,269	\$39,454	\$47,134	224	1,438	51	661	0.4%	0.9%
4529	Other General Merchandise Stores	\$180	\$520	3,617	11,125	\$22,470	\$22,358	1,263	3,934	683	2,438	1.7%	2.0%
3353	Electrical Equipment Manufacturing	\$82	\$481	811	3,850	\$51,248	\$58,835	160	776	-116	-410	-1.5%	-1.1%
Source: JobsEQ®													

## GO VA Region One – Growth & Diversification Plan (August, 2017)

While manufacturing industries are well-represented in the top 20 GDP-driving industries in the labor shed, other industries stand out for high levels of employment. Post-secondary schools are a major employer in the labor shed but not the GO VA 1 region as many of the large schools, including Virginia Tech, Radford, and East Tennessee State University, are located on the outskirts of the region. Two other key industries in the region, company management and resin and synthetic manufacturing, also have large employment bases in areas on the edge of the labor-shed in Sullivan, Tennessee and Roanoke, Virginia, indicating an opportunity to attract similar companies to the core GO VA 1 region.

**Top 20 Industries by Employment in the GO VA 1 and Labor Shed**

Industry	Current (Four Quarters Ending with 2017Q1) Employment				Forecast Over the Next 10 Years					
			Average Annual Wages		Total Approx. Repl. Demand		Total Growth Demand		Avg. Annual Growth Percent	
	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed
Restaurants and Other Eating Places	9,445	43,640	\$14,349	\$15,021	3,321	15,645	-475	-509	-0.5%	-0.1%
General Medical and Surgical Hospitals	3,107	31,174	\$42,033	\$61,883	569	5,865	-155	154	-0.5%	0.0%
Elementary and Secondary Schools	8,915	30,891	\$30,015	\$35,877	1,864	6,663	-818	-980	-1.0%	-0.3%
<b>Colleges, Universities, and Professional Schools</b>	<b>1,471</b>	<b>17,061</b>	<b>\$42,740</b>	<b>\$45,569</b>	<b>276</b>	<b>3,246</b>	<b>-33</b>	<b>135</b>	<b>-0.2%</b>	<b>0.1%</b>
Offices of Physicians	2,970	13,394	\$69,912	\$83,395	603	2,764	323	1,980	1.0%	1.4%
Grocery Stores	4,022	12,701	\$16,357	\$17,694	1,256	4,045	-339	-587	-0.9%	-0.5%
Other General Merchandise Stores	3,617	11,125	\$22,470	\$22,358	1,263	3,934	683	2,438	1.7%	2.0%
Executive, Legislative, and Other General Government Support	2,711	9,953	\$31,078	\$35,487	613	2,286	-165	-292	-0.6%	-0.3%
Employment Services	1,125	9,344	\$27,193	\$24,022	260	2,188	45	648	0.4%	0.7%
Justice, Public Order, and Safety Activities	4,965	9,192	\$42,255	\$45,926	1,259	2,377	-581	-729	-1.2%	-0.8%
<b>Management of Companies and Enterprises</b>	<b>1,428</b>	<b>8,801</b>	<b>\$75,954</b>	<b>\$69,390</b>	<b>292</b>	<b>1,845</b>	<b>-95</b>	<b>-130</b>	<b>-0.7%</b>	<b>-0.1%</b>
Individual and Family Services	3,961	8,528	\$22,542	\$24,267	660	1,439	221	708	0.5%	0.8%
Nursing Care Facilities (Skilled Nursing Facilities)	2,487	8,258	\$26,621	\$30,547	487	1,647	-40	194	-0.2%	0.2%
Business Support Services	2,440	7,709	\$26,419	\$27,520	608	1,931	254	879	1.0%	1.1%
Building Equipment Contractors	1,159	7,269	\$39,454	\$47,134	224	1,438	51	661	0.4%	0.9%
Services to Buildings and Dwellings	1,411	7,168	\$20,856	\$22,134	319	1,648	-60	-76	-0.4%	-0.1%
<b>Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing</b>	<b>461</b>	<b>6,992</b>	<b>\$52,725</b>	<b>\$87,939</b>	<b>119</b>	<b>1,825</b>	<b>-88</b>	<b>-1,199</b>	<b>-2.1%</b>	<b>-1.9%</b>
Automobile Dealers	1,021	6,403	\$39,574	\$48,021	271	1,738	-13	224	-0.1%	0.3%
Religious Organizations	1,361	6,380	\$15,444	\$16,017	297	1,419	-99	-238	-0.8%	-0.4%
Depository Credit Intermediation	1,621	6,000	\$38,054	\$47,795	415	1,567	-193	-483	-1.3%	-0.8%

Source: JobsEQ®



## GO VA Region One – Growth & Diversification Plan (August, 2017)

The region's competitive advantage in manufacturing is highlighted when the top industries are sorted by location quotient (LQ).<sup>\*</sup> Sixteen of the industries with the largest LQ in the labor shed are manufacturing. This competitive advantage represents an opportunity to attract similar firms that have wages above the regional average. Despite the expected contraction in employment for almost all of the top 20 LQ industries, replacement demand is high in many of these industries, and economic development efforts can be devoted toward attraction and retention of these key manufacturing companies.

Top 20 Industries by Location Quotient in the GO VA 1 and Labor Shed													
NAICS	Industry	Current (Four Quarters Ending with 2017Q1)						Employment Forecast Over the Next 10 Years					
		Location Quotient		Employment		Average Annual Wages		Total Approx. Repl. Demand		Total Growth Demand		Avg. Annual Growth Percent	
		GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	5.42	20.26	461	6,992	\$52,725	\$87,939	119	1,825	-88	-1,199	-2.1%	-1.9%
2121	Coal Mining	51.31	19.34	2,230	3,410	\$79,546	\$76,815	426	652	-433	-660	-2.1%	-2.1%
3151	Apparel Knitting Mills	3.45	10.19	39	465	\$24,738	\$24,596	8	96	-22	-274	-7.9%	-8.5%
3259	Other Chemical Product and Preparation Manufacturing	4.35	8.60	327	2,622	\$41,541	\$57,106	73	610	-85	-512	-3.0%	-2.2%
3353	Electrical Equipment Manufacturing	6.42	7.51	811	3,850	\$51,248	\$58,835	160	776	-116	-410	-1.5%	-1.1%
3365	Railroad Rolling Stock Manufacturing	n/a	6.73	0	619	n/a	\$60,944	n/a	140	n/a	-10	n/a	-0.2%
3133	Textile and Fabric Finishing and Fabric Coating Mills	0.56	5.11	16	599	\$30,465	\$50,407	4	144	-5	-169	-3.5%	-3.3%
3352	Household Appliance Manufacturing	2.00	4.74	114	1,102	\$46,558	\$48,701	21	208	-25	-218	-2.5%	-2.2%
3132	Fabric Mills	5.64	4.33	275	855	\$22,616	\$30,968	75	232	-75	-249	-3.1%	-3.4%
3362	Motor Vehicle Body and Trailer Manufacturing	17.08	4.22	2,364	2,368	\$32,600	\$32,601	465	466	-236	-237	-1.0%	-1.0%
3272	Glass and Glass Product Manufacturing	3.81	3.63	310	1,195	\$25,967	\$47,247	64	255	-89	-296	-3.3%	-2.8%
3361	Motor Vehicle Manufacturing	n/a	3.31	0	2,613	n/a	\$49,461	n/a	468	n/a	-298	n/a	-1.2%
3262	Rubber Product Manufacturing	1.43	3.16	173	1,557	\$55,533	\$57,019	40	364	-39	-311	-2.5%	-2.2%
1110	Crop Production (Proprietors)	5.81	2.99	1,480	3,088	\$7,366	\$6,932	482	1,025	-260	-441	-1.9%	-1.5%
3351	Electric Lighting Equipment Manufacturing	4.47	2.89	204	536	\$41,478	\$48,791	39	103	-43	-104	-2.3%	-2.1%
4821	Rail Transportation	2.70	2.87	521	2,240	\$80,438	\$79,727	139	617	-86	-237	-1.8%	-1.1%
3131	Fiber, Yarn, and Thread Mills	9.21	2.86	243	307	\$17,758	\$20,373	68	86	-69	-85	-3.3%	-3.2%
3379	Other Furniture Related Product Manufacturing	7.68	2.54	265	355	\$28,651	\$28,287	54	73	-55	-67	-2.3%	-2.1%
2373	Highway, Street, and Bridge Construction	4.24	2.50	1,888	4,508	\$40,328	\$43,290	377	910	22	167	0.1%	0.4%
3325	Hardware Manufacturing	0.21	2.34	5	216	\$47,222	\$59,467	1	42	-1	-44	-2.9%	-2.3%

Source: JobsEQ®

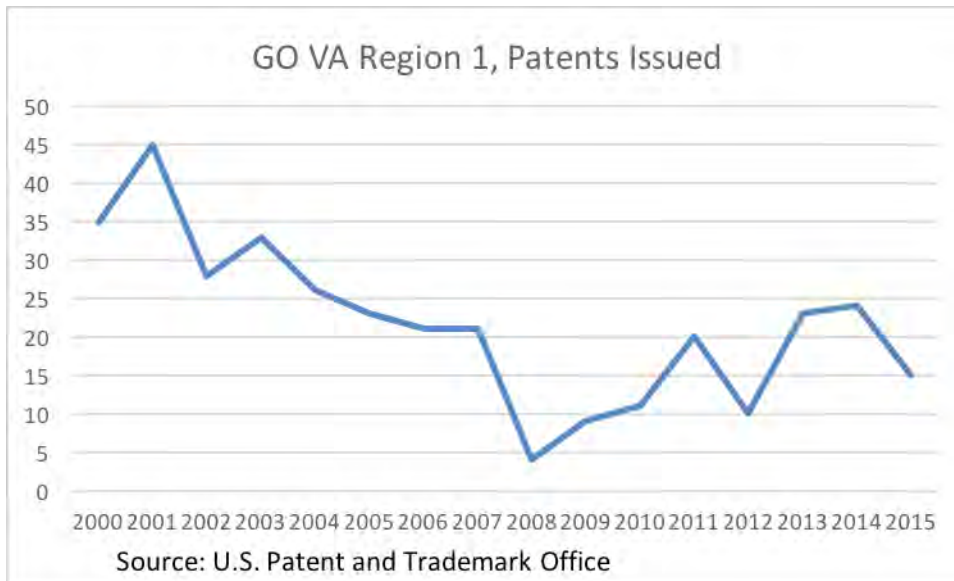
<sup>\*</sup> The location quotient measures the degree to which an industry is concentrated or specialized in a region relative to the nation, by computing the ratio of the share of an industry's employment in a region to the same industry's share of employment in the nation.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Building on Region's Export Industries

**The key drivers in GO VA 1 and the labor shed are the manufacturing sector and energy cluster**—both produce products that are exported out of the region thus bring more wealth into the region than non-exporting industries. National and international factors have impacted both manufacturing and energy that have led to significant employment declines in the region. However, as noted in the strategy section of this report, GO VA 1 can build off on the strengths in manufacturing and diversify and grow the regional economy with jobs that pay more than the regional average.

### Innovation



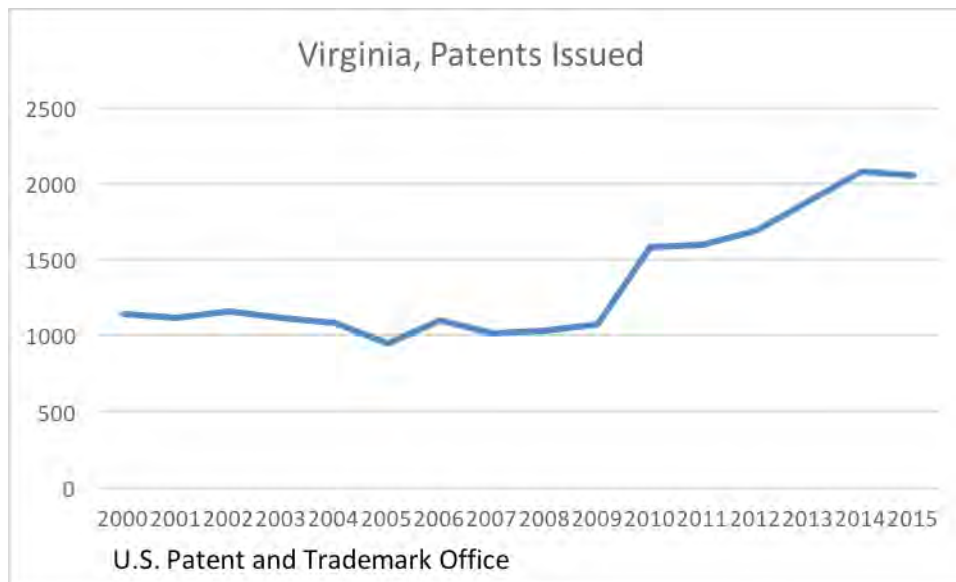
Innovation is important in a region because it leads to potential new products and services that drive employment growth. Patents, although often considered a lagging indicator of innovation, provide a benchmark for a comparative view of a region's innovation activity.

As shown in the chart here, the number of patents issued in GO VA Region 1 peaked in 2001 and declined to 5 in 2008 and has increased slightly to 15 in 2015. The region has also had about 18 utility patent grants per year over the past five years, most of which are in Washington County.

In contrast, patents issued in the state of Virginia have doubled over the last six years ending with 2015 from 1,000 to slightly over 2,000.

Small Business Innovation Research (SBIR) grants also provide a measure of innovation in a region because they represent seed funding from the federal government.

## GO VA Region One – Growth & Diversification Plan (August, 2017)



There have been five SBIR awards between 2010 and 2016 in the GO VA 1 region, mostly related to aquaculture:

- Innovative Removal of Agriculturally Related Pollutants from Surface Water Tributaries in the Chesapeake Bay Watershed
- Rural Community Well Water Treatment Field Pilot
- Improving Commercial Fish Meal Free Aquaculture Diets
- Development of Novel Calcium Receptor Based Mineral Supplementation Technologies For Inland Shrimp Aquaculture
- Optimizing Inland Tank Based Recirculation Aquaculture Methods To Produce Cobia Under Reduced Water Salinity Conditions

### Occupations

Although the manufacturing sector and energy cluster drive the local economy, a review of the occupations for all industries shows the top two major groups are office and administration support and sales, which crosses over many different industries for the GO VA 1 region and its labor shed. Production occupations, which reflect the manufacturing and coal mining presence, make up the third-largest group of occupations in Go VA 1 and the fourth-largest in its labor shed. Food preparation and serving-related occupations rank fourth in GO VA 1 and third in the GO VA 1 labor shed.

Over the next 10 years beginning with the first quarter of 2017, the fastest growing occupation group in GO VA 1 is expected to be healthcare support occupations with a 1.1% annual average rate of growth. The occupation groups with the largest projected employment growth over this period are healthcare practitioners and technical (+520 jobs); healthcare support (+415); and personal care and service (+315). Over the same period, the highest replacement demand (due to retirements and workers moving from one occupation to another) is expected in sales (+4,941 jobs) and office and administrative support (+4,418). Within the labor shed, the occupation groups forecast to have the highest demand due to growth and replacements are the same as in GO VA 1.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Occupation Mix in the GO VA 1 and Labor Shed													
SOC	Occupation Title	Current (Four Quarters Ending with 2017Q1)						Forecast Over the Next 10 Years					
		Employment		Average Annual Wages		Unemployment Rate		Total Approx. Repl. Demand		Total Growth Demand		Avg. Annual Growth Percent	
		GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed
11	Management	9,454	30,844	\$88,100	\$96,500	2.0%	2.1%	3,764	10,715	-764	-866	-0.8%	-0.3%
13	Business and Financial Operations	4,083	20,194	\$61,200	\$63,800	4.2%	3.7%	909	4,528	-155	247	-0.4%	0.1%
15	Computer and Mathematical	2,146	10,050	\$64,000	\$69,600	3.9%	3.4%	312	1,519	32	664	0.2%	0.6%
17	Architecture and Engineering	1,840	8,350	\$71,500	\$75,300	3.3%	2.9%	452	2,099	-174	-454	-1.0%	-0.6%
19	Life, Physical, and Social Science	730	3,871	\$63,500	\$66,800	3.0%	2.6%	225	1,183	-35	-40	-0.5%	-0.1%
21	Community and Social Service	3,099	10,377	\$38,000	\$40,500	1.7%	1.4%	668	2,285	61	545	0.2%	0.5%
23	Legal	740	3,120	\$72,000	\$80,600	2.2%	2.0%	141	618	-35	7	-0.5%	0.0%
25	Education, Training, and Library	8,683	33,672	\$45,900	\$46,500	2.3%	2.0%	1,788	6,921	-496	-13	-0.6%	0.0%
27	Arts, Design, Entertainment, Sports, and Media	1,504	6,899	\$38,100	\$42,300	3.9%	3.5%	525	2,391	-127	-322	-0.9%	-0.5%
29	Healthcare Practitioners and Technical	8,343	42,680	\$65,800	\$70,000	1.6%	1.3%	1,767	9,310	520	3,827	0.6%	0.9%
31	Healthcare Support	3,748	17,799	\$24,500	\$26,700	6.0%	5.5%	816	3,919	415	2,626	1.1%	1.4%
33	Protective Service	4,617	12,789	\$36,700	\$35,600	4.2%	4.4%	1,173	3,067	-441	-523	-1.0%	-0.4%
35	Food Preparation and Serving Related	11,486	51,220	\$20,100	\$20,900	9.2%	8.6%	4,225	19,252	-501	-312	-0.4%	-0.1%
37	Building and Grounds Cleaning and Maintenance	4,208	17,650	\$22,100	\$23,900	10.0%	9.4%	932	3,986	-134	71	-0.3%	0.0%
39	Personal Care and Service	5,040	18,994	\$21,600	\$23,400	5.5%	4.9%	1,150	5,145	315	1,475	0.6%	0.8%
41	Sales and Related	14,561	58,435	\$29,700	\$32,600	6.2%	5.6%	4,941	19,277	-545	-779	-0.4%	-0.1%
43	Office and Administrative Support	19,670	84,043	\$30,000	\$32,100	6.5%	5.9%	4,418	18,765	-1,279	-2,879	-0.7%	-0.3%
45	Farming, Fishing, and Forestry	703	1,465	\$27,700	\$26,900	9.4%	9.3%	361	698	-85	-160	-1.3%	-1.1%
47	Construction and Extraction	7,352	25,872	\$38,000	\$38,700	11.9%	11.0%	1,350	4,776	-204	965	-0.3%	0.4%
49	Installation, Maintenance, and Repair	5,711	24,455	\$38,300	\$41,200	4.8%	4.4%	1,375	6,049	-291	83	-0.5%	0.0%
Source: JobsEQ® Average wages represent all covered employment as of 2016													

Though many of the occupations supporting manufacturing are forecast to decline along with the sector, there is still demand for replacements due to retirements and individuals changing jobs. Over the next 10 years, an estimated 677 team assemblers will be needed in the labor shed, along with 349 machinists, and 342 welders, cutters, solderers, and brazers.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Top 20 Manufacturing Occupations by Employment in the GO VA 1 and Labor Shed											
SOC	Title	Current (Four Quarters Ending with 2017Q1)				Forecast Over the Next 10 Years					
		Employment		Average Annual Wages		Total Approx. Repl. Demand		Total Growth Demand		Total Demand	
		GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed
51-2092	Team Assemblers	1,728	6,376	\$27,300	\$30,000	387	1,426	-201	-749	186	677
51-1011	First-Line Supervisors of Production and Operating Workers	626	2,368	\$55,200	\$61,200	107	405	-89	-323	17	81
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	471	1,740	\$33,200	\$37,600	117	432	-71	-253	45	179
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	453	1,501	\$24,000	\$25,700	135	448	-59	-191	76	256
51-4121	Welders, Cutters, Solderers, and Brazers	497	1,368	\$38,000	\$39,400	156	435	-45	-93	112	342
51-9011	Chemical Equipment Operators and Tenders	92	1,273	\$46,600	\$49,900	39	556	-19	-215	21	340
51-4041	Machinists	307	1,264	\$36,000	\$41,300	86	355	-6	-6	80	349
49-9071	Maintenance and Repair Workers, General	277	1,207	\$32,900	\$35,200	68	296	-39	-170	29	126
49-9041	Industrial Machinery Mechanics	310	1,198	\$42,000	\$46,300	79	307	6	23	85	330
51-2022	Electrical and Electronic Equipment Assemblers	218	1,160	\$32,300	\$33,800	42	224	-31	-133	10	92
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	318	1,096	\$53,100	\$57,900	59	204	-44	-150	15	54
51-9198	Helpers--Production Workers	268	1,077	\$26,600	\$27,300	77	311	-50	-198	27	113
11-1021	General and Operations Managers	273	1,007	\$87,000	\$99,000	66	244	-40	-140	26	104
43-9061	Office Clerks, General	276	873	\$28,700	\$29,400	55	173	-52	-157	3	16
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	192	869	\$37,100	\$33,600	39	175	-56	-248	0	0
51-9111	Packaging and Filling Machine Operators and Tenders	292	864	\$32,400	\$31,900	101	296	-32	-115	69	181
43-5071	Shipping, Receiving, and Traffic Clerks	227	809	\$30,000	\$31,300	43	154	-45	-154	0	0
43-4051	Customer Service Representatives	187	795	\$25,300	\$27,900	44	188	-31	-125	13	63
53-7051	Industrial Truck and Tractor Operators	239	792	\$30,900	\$32,300	66	218	-29	-98	37	121
51-9199	Production Workers, All Other	147	784	\$34,100	\$35,800	28	149	-21	-109	7	41
Source: JobsEQ® Average wages represent all covered employment as of 2016											

Over the next ten years beginning with the first quarter of 2017, the largest demand among occupations supporting the energy sector in the labor shed is for electrical power-line installers (611 due to growth and replacement). Wages for electrical power-line installers and repairers (\$59,700) are well above the regional average wages. Construction laborers is the second-fastest growing occupation in the labor shed with a need of 242 workers over the next ten years.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

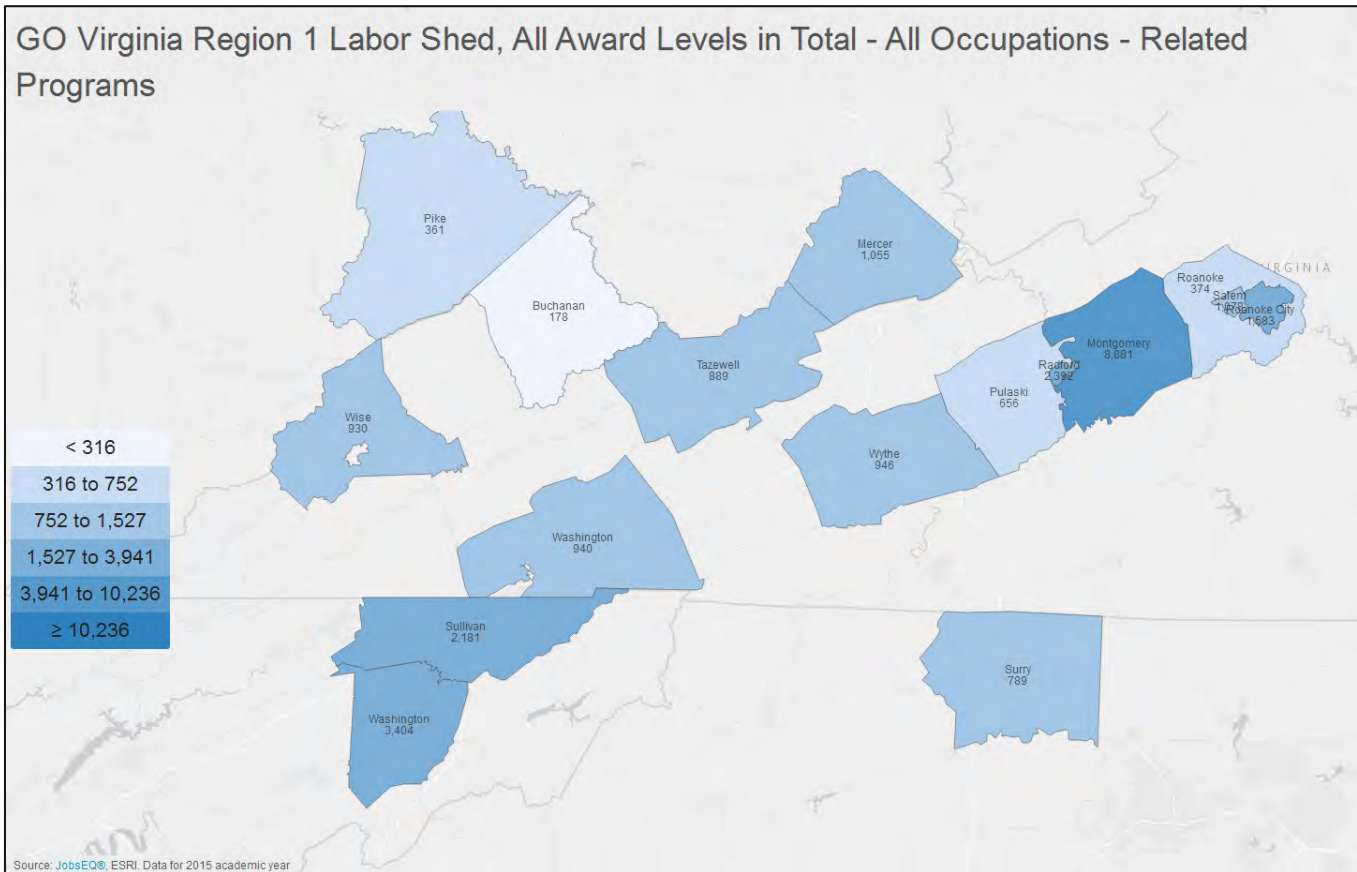
Top 20 Energy Occupations by Employment in the GO VA 1 and Labor Shed											
SOC	Title	Current (Four Quarters Ending with 2017Q1)				Forecast Over the Next 10 Years					
		Employment		Average Annual Wages		Total Approx. Repl. Demand		Total Growth Demand		Total Demand	
		GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed	GO VA 1	Labor Shed
	Operating Engineers and Other										
47-2073	Construction Equipment Operators	373	711	\$37,800	\$38,300	58	118	-38	10	20	128
53-3032	Heavy and Tractor-Trailer Truck Drivers	253	460	\$37,300	\$39,700	44	82	-27	-28	17	55
47-1011	Supervisors of Construction and Extraction Workers	217	446	\$61,000	\$56,800	18	41	-19	24	0	64
47-5061	Roof Bolters, Mining	147	229	\$45,900	\$49,700	20	31	-40	-61	0	0
47-5041	Continuous Mining Machine Operators	146	248	\$45,300	\$48,700	23	38	-39	-65	0	0
53-7032	Excavating and Loading Machine and Dragline Operators	136	214	\$36,100	\$38,200	16	26	-24	-25	0	2
47-2111	Electricians	121	253	\$43,300	\$45,200	19	42	-19	-7	0	35
47-2061	Construction Laborers	121	409	\$25,300	\$28,000	32	117	16	125	47	242
43-9061	Office Clerks, General	118	243	\$28,700	\$29,400	24	52	-16	-10	8	42
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	115	198	\$45,600	\$44,800	26	46	-19	-21	7	25
49-9041	Industrial Machinery Mechanics	110	185	\$42,000	\$46,300	28	48	4	8	32	56
47-5081	Helpers--Extraction Workers	94	140	\$33,100	\$35,300	9	14	-12	-17	0	0
11-1021	General and Operations Managers	94	218	\$87,000	\$99,000	23	57	-10	-1	14	56
51-2022	Electrical and Electronic Equipment Assemblers	81	133	\$32,300	\$33,800	16	26	-10	-16	5	10
49-9051	Electrical Power-Line Installers and Repairers	80	832	\$59,700	\$62,600	32	383	1	229	33	611
49-9071	Maintenance and Repair Workers, General	78	163	\$32,900	\$35,200	19	41	-11	-16	8	25
47-5042	Mine Cutting and Channeling Machine Operators	72	109	\$36,500	\$42,400	13	20	-14	-20	0	0
47-5013	Service Unit Operators, Oil, Gas, and Mining	71	100	\$63,100	\$58,100	23	33	-5	-7	18	26
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	69	227	\$56,700	\$57,800	13	48	-9	19	4	66
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	61	128	\$24,000	\$25,700	18	40	-7	-3	12	38
Source: JobsEQ®											
Average wages represent all covered employment as of 2016											



## GO VA Region One – Growth & Diversification Plan (August, 2017)

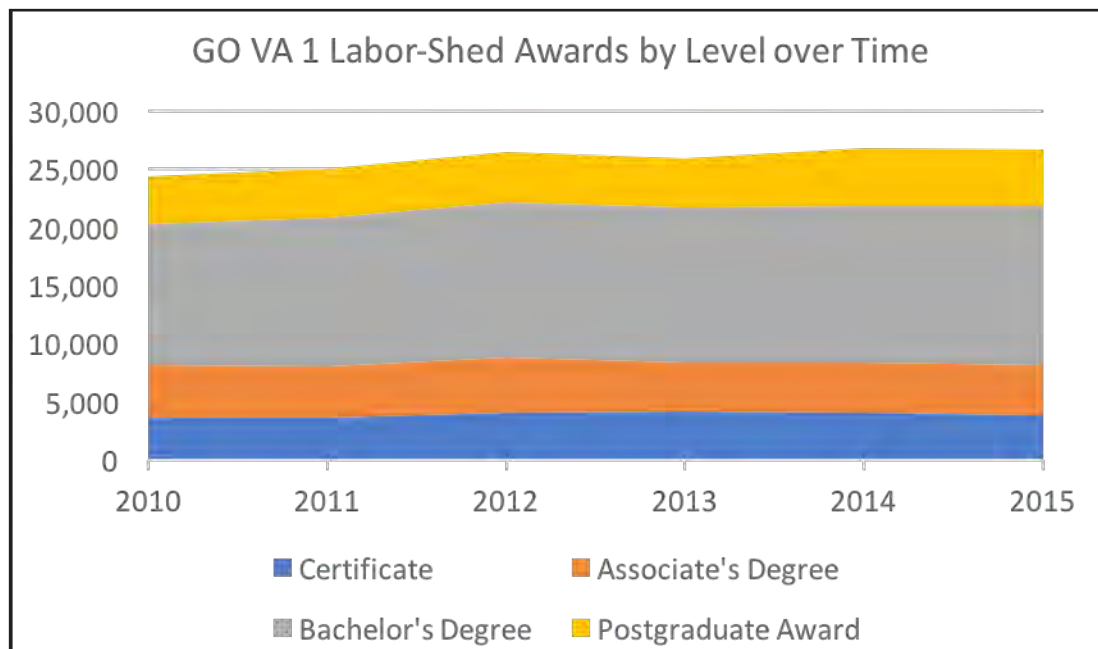
### Education

Postsecondary education in GO VA 1 is heavily influenced by the large institutions within the labor shed. As shown in the map below, most awards in the region come from Virginia Tech in Montgomery County, Virginia; East Tennessee State University (ETSU) in Johnson City, Tennessee; and Radford University in Radford, Virginia. Schools within the GO VA 1 core region account for 4% of the region's awards of postgraduate degrees, 6% of the region's bachelor's degrees, 26% of the region's associate's degrees, and 47% of the region's certificates.





## GO VA Region One – Growth & Diversification Plan (August, 2017)



Within the labor shed, the number of awards has not changed significantly over the last five years. The total number of awards was greater than 25,000 from all institutions in 2015. Increases over this period were primarily in bachelor's degrees, doctorates, and certificates requiring less than 2 years. While numerous national, state, and regional studies suggest a "middle skills" gap in training for jobs that typically require more than a high school education but less than a 4-year degree, the number of associate's degrees awarded in the region has stayed roughly the same over the past five years.

Virginia Tech, ETSU, Radford, and King University award 82% of the bachelor's degrees in the labor shed. The community colleges in the list of the top 24 higher education institutions below award 77% of the certificates and 83% of the associate's degrees in the labor shed. The seven schools in the core GO VA 1 region are italicized.

	Certificate	Associate's Degree	Bachelor's Degree	Postgraduate Awards	Total
Virginia Tech	0	49	6,134	2,308	8,491
Eastern Tennessee State University	2	0	2,276	899	3,177
Radford University	33	0	1,923	436	2,392
Northeast State Community College	281	828	0	0	1,109
Virginia Western Community College	442	665	0	0	1,107
King University	0	13	848	211	1,072
<i>Wytheville Community College</i>	647	299	0	0	946
<i>Surry Community College</i>	278	511	0	0	789
<i>Southwest Virginia Community College</i>	401	259	0	0	660
<i>New River Community College</i>	226	430	0	0	656
<i>Mountain Empire Community College</i>	397	239	0	0	636
<i>Virginia Highlands Community College</i>	292	312	0	0	604
American National University	162	320	51	21	554
Concord University	0	0	455	75	530
Roanoke College	0	0	465	0	465

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Edward Via College of Osteopathic Medicine	0	0	0	390	390
University of Pikeville	0	23	241	86	350
Jefferson College of Health Sciences	11	76	176	79	342
<i>The University of Virginia's College at Wise</i>	0	0	294	0	294
<i>Emory &amp; Henry College</i>	0	0	247	17	264
Bluefield State College	0	87	170	0	257
Hollins University	0	0	167	76	243
Mercer County Technical Education Center	232	0	0	0	232
<i>Bluefield College</i>	0	0	225	4	229
<b>All Schools in the Labor Shed</b>	<b>3,851</b>	<b>4,286</b>	<b>13,680</b>	<b>4,820</b>	<b>26,637</b>

The top bachelor's degree and postgraduate award programs in the labor shed are health, business, engineering, education, social sciences, and biological sciences. While health professions remain at the top for certificate awards, liberal arts and sciences top the list for associate's degrees.

	Certificate	Associate's Degree	Bachelor's Degree	Postgraduate Award	Total Awards
Health Professions And Related Programs	1,462	1,198	1,305	1,388	5,353
Business, Management, Marketing, And Related Support Services	241	466	2,482	498	3,687
Liberal Arts And Sciences, General Studies And Humanities	845	1,488	348	18	2,699
Engineering	15	24	1,468	583	2,090
Education	1	19	396	849	1,265
Social Sciences	0	74	993	110	1,177
Biological And Biomedical Sciences	0	0	811	84	895
Computer And Information Sciences And Support Services	81	163	393	154	791
Psychology	0	0	703	71	774
Family And Consumer Sciences/Human Sciences	40	28	569	31	668
<b>All Programs</b>	<b>3,851</b>	<b>4,286</b>	<b>13,680</b>	<b>4,820</b>	<b>26,637</b>

### Gaps

This section details immediate and potential gaps in occupations and skills to support employment growth in GO VA 1. Current demand is based on Real-Time Intelligence (RTI) gathered and analyzed by Chmura Economics & Analytics from online job postings. Long-term needs and gaps are based on JobsEQ analytics.

### Current Gaps

Job openings identify an immediate skills gap for employers and opportunities for job seekers. Large numbers of job postings for individual occupations suggest an apparent skills gap as many businesses need the same skills. As shown in the table below, first-line supervisors of retail sales workers and retail salespersons top the list of jobs posted online in GO VA 1.\* Fifteen of

## GO VA Region One – Growth & Diversification Plan (August, 2017)

the top twenty occupations based on the number of job postings typically do not require postsecondary education.

Occupations with a high number of job postings that typically require more than a high school diploma (such as an industry-recognized credential, associate's degree, etc.) are primarily in healthcare (medical and health services managers); and logistics, warehousing, and distribution (heavy and tractor-trailer truck drivers). An exception is registered nurses that require at least an associate's degree along with a certification.

Table 13: GO VA 1 Job Postings for Top 20 Occupations, June-July 2017

SOC	Occupation	Typical Entry-Level Education	Number
41-1011	First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	391
41-2031	Retail Salespersons	Less than high school	318
53-3032	Heavy and Tractor-Trailer Truck Drivers	Postsecondary non-degree award	295
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	Less than high school	168
29-1141	Registered Nurses	Bachelor's degree	136
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	126
43-4051	Customer Service Representatives	High school diploma or equivalent	118
43-5081	Stock Clerks, Sales Floor	Less than high school	101
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Less than high school	84
41-3099	Sales Representatives, Services, All Other	High school diploma or equivalent	75
11-9051	Food Service Managers	High school diploma or equivalent	67
35-2021	Food Preparation Workers	Less than high school	62
41-3021	Insurance Sales Agents	High school diploma or equivalent	53
11-9111	Medical and Health Services Managers	Bachelor's degree	51
15-1151	Computer User Support Specialists	Some college, no degree	49
37-2012	Maids and Housekeeping Cleaners	Less than high school	48
49-9071	Maintenance and Repair Workers, General	High school diploma or equivalent	44
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	Less than high school	43
29-1127	Speech-Language Pathologists	Master's degree	43
21-1093	Social and Human Service Assistants	High school diploma or equivalent	43
Source: JobsEQ®			

\* Counts of unique job postings may not equate with actual job demand. For example, job postings may be placed in anticipation of possible openings that do not materialize. Moreover, slight variations of ads may be placed such that the number of ads exceeds the actual number of openings.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Similarly, certifications requested in the text of online job postings primarily support the healthcare sector. Cardiopulmonary Resuscitation (CPR) tops the list of the top 25 certifications requested in job ads over this 30-day period. Commercial Driver's License (CDL) was the 2<sup>nd</sup> most requested certification (75 postings), Class A CDL appeared in 48 posts. Additional certifications not in the healthcare sector include Automotive Service Excellence (31), HAZMAT (10), Certified Driver Trainer (6), and Certified Tree Worker



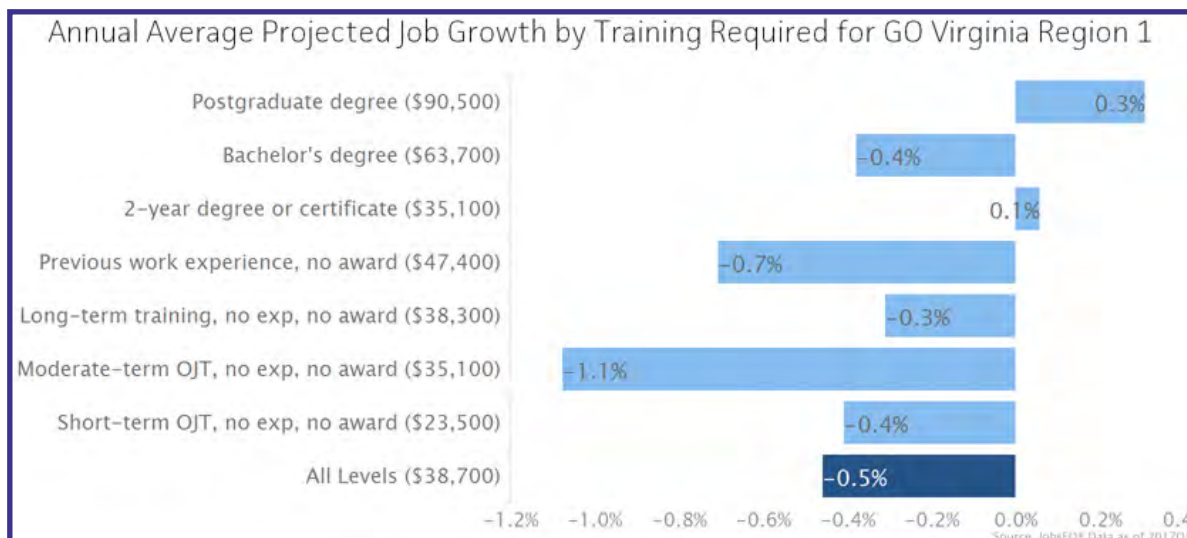
Source: JobsEQ®

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Projected Gaps

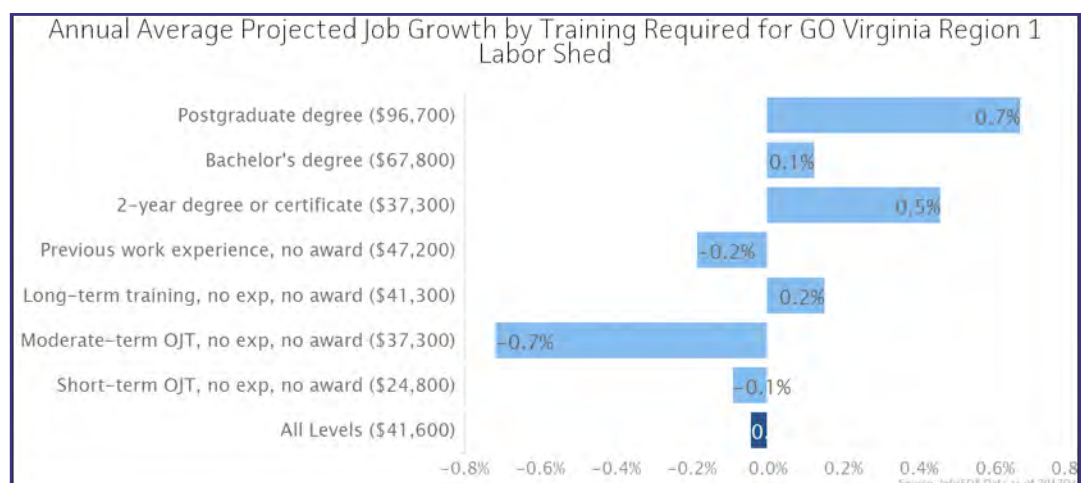
Skills and occupations that are in demand today may not be in demand in the months or years ahead when a student finishes a training program or education. For that reason, long-term gaps need to be considered in conjunction with current needs.

Expected growth rates for occupations vary by the education and training required. While all employment in GO VA 1 is projected to decline at an average annual rate of 0.5% over the next ten years, occupations typically requiring a postgraduate degree are expected to grow 0.3% per year, and those typically requiring a 2-year degree or certificate are expected to grow 0.1% per year.



Employment by occupation data are estimates as of 2017Q1. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

Employment by occupation data estimates are as of 2017Q1. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.



The outlook at all training levels improves in the GO VA 1 labor shed. Though employment overall is projected to stay flat over the next ten years, occupations that typically require a postgraduate degree are expected to grow at an average annual rate of 0.7% over this period. Occupations that typically require a 2-year degree or certificate are projected to grow 0.5%, and occupations requiring a bachelor's degree are expected to grow 0.1%.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

The approach taken here is to identify the apparent long-term skills gaps based on the total annual demand created from growth in industries needing the occupation as well as from positions that need to be filled because individuals are retiring or moving to a different occupation. In this case, a shortage of qualified workers could potentially occur if individuals are not being trained or educated to fill the openings.

The potential supply shortfall or gap is an underlying force that the labor market will resolve in one way or another, such as by employers recruiting from further distances for these occupations, wages going up to attract more candidates, demand and wages both enticing more residents to get training for this occupation, or companies deciding to relocate to another labor market with more ample supply.

Key occupations for regional drivers and occupation clusters identified in previous sections are identified using a test of significance and dominance.\* The key sectors are advanced manufacturing, energy, and information technology. Occupations that account for a substantial share of total employment (1% or greater) in the given sector are considered significant, while if 20% or more of an occupation's total employment is in the sector, it is considered dominant.

Among occupations at the detailed level in GO VA 1, the largest projected potential shortfalls are for cashiers; farmers, ranchers, and other agricultural managers; and retail salespersons. For these occupations, which typically do not require education beyond a high school diploma or equivalent for entry, there is a potential annual supply gap of at least 1,100 workers per occupation over the next decade. Occupations that require a postsecondary non-degree award, such as an industry recognized certification, and have high annual demand include nursing assistants; licensed practical and licensed vocational nurses; heavy and tractor-trailer truck drivers; and automotive service technicians and mechanics.

Potential Occupation Gaps over 10 Years in GO VA 1: Occupations with Total Annual Demand > 100								
SOC	Title	Typical Education Need For Entry	Current Employment 2017Q1	Relevant to Key Drivers	Avg. Annual Wages 2016	Annual Growth Demand	Annual Repl Demand	Total Annual Demand/Potential Supply Gap
41-2011	Cashiers	Less than high school	5,359		\$18,500	-340	2,259	1,919
11-9013	Farmers, Ranchers, and Other Agricultural Managers	High school diploma or equivalent	3,493		\$55,600	-497	2,061	1,564
41-2031	Retail Salespersons	Less than high school	3,839		\$25,300	74	1,370	1,444
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	Less than high school	3,823		\$17,800	-60	1,217	1,157
43-4051	Customer Service Representatives	High school diploma or equivalent	2,981		\$25,300	160	778	938
35-3031	Waiters and Waitresses	Less than high school	1,852		\$20,700	-130	877	747
43-5081	Stock Clerks and Order Fillers	Less than high school	2,328		\$22,500	-45	773	728
39-9021	Personal Care Aides	Less than high school	2,331		\$17,300	338	252	590
29-1141	Registered Nurses	Bachelor's degree	2,069		\$51,600	120	466	586
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	Less than high school	1,923		\$24,000	-120	591	471

\* This approach of significance and dominance was used in *The Commonwealth of Virginia WIOA Combined State Plan for July 1, 2016 through June 30, 2020*.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Potential Occupation Gaps over 10 Years in GO VA 1: Occupations with Total Annual Demand > 100								
SOC	Title	Typical Education Need For Entry	Current Employment 2017Q1	Relevant to Key Drivers	Avg. Annual Wages 2016	Annual Growth Demand	Annual Repl Demand	Total Annual Demand/ Potential Supply Gap
31-1014	Nursing Assistants	Postsecondary non-degree award	1,611		\$21,700	102	350	452
41-1011	First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	1,773		\$39,100	-47	472	425
47-2061	Construction Laborers	Less than high school	1,381		\$25,300	34	342	376
43-9061	Office Clerks, General	High school diploma or equivalent	2,916		\$28,700	-231	606	375
29-2061	Licensed Practical and Licensed Vocational Nurses	Postsecondary non-degree award	1,150		\$32,600	79	294	373
11-1021	General and Operations Managers	Bachelor's degree	1,606	•	\$87,000	-73	407	334
11-9199	Managers, All Other	Bachelor's degree	574		\$85,200	-12	333	321
53-3032	Heavy and Tractor-Trailer Truck Drivers	Postsecondary non-degree award	2,409	•	\$37,300	-144	427	283
31-1011	Home Health Aides	Less than high school	577		\$18,800	148	124	272
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Less than high school	1,698		\$21,700	-69	329	260
37-2012	Maids and Housekeeping Cleaners	Less than high school	1,019		\$18,500	-7	264	257
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	901		\$29,200	-14	267	253
35-2014	Cooks, Restaurant	Less than high school	799		\$20,800	27	219	246
35-2021	Food Preparation Workers	Less than high school	948		\$20,400	-37	278	241
33-3012	Correctional Officers and Jailers	High school diploma or equivalent	1,885		\$36,900	-244	481	237
29-2041	Emergency Medical Technicians and Paramedics	Postsecondary non-degree award	520		\$28,900	133	88	221
49-9071	Maintenance and Repair Workers, General	High school diploma or equivalent	1,146		\$32,900	-72	292	220
49-3023	Automotive Service Technicians and Mechanics	Postsecondary non-degree award	867		\$33,300	-52	260	208
51-2092	Team Assemblers	High school diploma or equivalent	1,826		\$27,300	-202	410	208
43-4171	Receptionists and Information Clerks	High school diploma or equivalent	778		\$24,500	5	202	207
25-9041	Teacher Assistants	Some college, no degree	1,297		\$21,400	-87	291	204
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	Less than high school	338		\$17,400	-17	220	203
33-3051	Police and Sheriff's Patrol Officers	High school diploma or equivalent	740		\$41,200	-45	239	194
39-9011	Childcare Workers	High school diploma or equivalent	562		\$21,600	-16	208	192
13-2011	Accountants and Auditors	Bachelor's degree	728		\$64,400	-13	203	190
35-2013	Cooks, Private Household	Postsecondary non-degree award	156		\$35,300	-15	205	190
37-3011	Landscaping and Groundskeeping Workers	Less than high school	1,004		\$22,900	-36	225	189
49-9041	Industrial Machinery Mechanics	High school diploma or equivalent	617	•	\$42,000	28	160	188
43-1011	First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent	1,292		\$43,700	-5	191	186
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	Less than high school	273		\$19,000	-15	200	185
25-2021	Elementary School Teachers, Except Special Education	Bachelor's degree	1,526		\$51,600	-125	305	180
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	Bachelor's degree	1,081		\$54,300	-88	241	153



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Potential Occupation Gaps over 10 Years in GO VA 1: Occupations with Total Annual Demand > 100								
SOC	Title	Typical Education Need For Entry	Current Employment 2017Q1	Relevant to Key Drivers	Avg. Annual Wages 2016	Annual Growth Demand	Annual Repl Demand	Total Annual Demand/Potential Supply Gap
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	624	•	\$38,000	-51	197	146
31-9092	Medical Assistants	Postsecondary non-degree award	406		\$29,500	50	82	132
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	Less than high school	194		\$23,000	-12	141	129
29-1123	Physical Therapists	Doctoral or professional degree	235		\$83,600	61	65	126
43-4081	Hotel, Motel, and Resort Desk Clerks	High school diploma or equivalent	255		\$18,100	-3	129	126
41-3099	Sales Representatives, Services, All Other	High school diploma or equivalent	527		\$46,300	-8	129	121
21-1093	Social and Human Service Assistants	High school diploma or equivalent	535		\$24,000	17	99	116
39-5012	Hairdressers, Hairstylists, and Cosmetologists	Postsecondary non-degree award	285		\$26,900	0	115	115
25-3098	Substitute Teachers	Bachelor's degree	901		\$35,700	-67	179	112
21-1021	Child, Family, and School Social Workers	Bachelor's degree	463		\$37,400	0	111	111
47-2031	Carpenters	High school diploma or equivalent	765		\$35,000	-13	124	111
53-7051	Industrial Truck and Tractor Operators	Less than high school	570		\$30,900	-51	160	109
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	Less than high school	241		\$20,100	-10	117	107
35-3011	Bartenders	Less than high school	269		\$23,400	4	102	106
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	874	•	\$53,100	-63	168	105
29-1069	Physicians and Surgeons, All Other	Doctoral or professional degree	281		\$246,900	23	78	101

Source: [JobsEQ®](#)

Occupation wages are as of 2016 and represent the average for all Covered Employment

Most of the detailed occupations with the largest projected potential shortfalls have annual average wages below the regional average. Only two of the top ten have above-average wages—farmers, ranchers, and other agricultural managers; and registered nurses. Out of the 58 occupations with more than 100 annual openings projected, 15 occupations have above-average wages, and many require advanced training. Occupations which typically require a high school diploma or less and pay above-average wages include laborers and freight, stock, and material movers; police and sheriff's patrol officers; and industrial machine mechanics. The top 30 occupations with above-average wages and high forecast demand are shown in the following table.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Top 30 Occupations with Above-Average Wages					
SOC	Title	Typical Education Need For Entry	Current Employment 2017Q1	Avg. Annual Wages 2016	Total Annual Demand Over the Next 10 Years
11-9013	Farmers, Ranchers, and Other Agricultural Managers	High school diploma or equivalent	3,493	\$55,600	1,564
29-1141	Registered Nurses	Bachelor's degree	2,069	\$51,600	586
41-1011	First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	1,773	\$39,100	425
11-1021	General and Operations Managers	Bachelor's degree	1,606	\$87,000	334
11-9199	Managers, All Other	Bachelor's degree	574	\$85,200	321
33-3051	Police and Sheriff's Patrol Officers	High school diploma or equivalent	740	\$41,200	194
13-2011	Accountants and Auditors	Bachelor's degree	728	\$64,400	190
49-9041	Industrial Machinery Mechanics	High school diploma or equivalent	617	\$42,000	188
43-1011	First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent	1,292	\$43,700	186
25-2021	Elementary School Teachers, Except Special Education	Bachelor's degree	1,526	\$51,600	180
25-2031	Secondary School Teachers, Except Special and Career/ Technical Education	Bachelor's degree	1,081	\$54,300	153
29-1123	Physical Therapists	Doctoral or professional degree	235	\$83,600	126
41-3099	Sales Representatives, Services, All Other	High school diploma or equivalent	527	\$46,300	121
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	874	\$53,100	105
29-1069	Physicians and Surgeons, All Other	Doctoral or professional degree	281	\$246,900	101
11-9111	Medical and Health Services Managers	Bachelor's degree	275	\$90,400	97
41-3021	Insurance Sales Agents	High school diploma or equivalent	305	\$44,900	97
21-1023	Mental Health and Substance Abuse Social Workers	Bachelor's degree	312	\$38,500	94
21-1014	Mental Health Counselors	Master's degree	290	\$39,600	92
31-2021	Physical Therapist Assistants	Associate's degree	125	\$53,400	76
15-1121	Computer Systems Analysts	Bachelor's degree	357	\$67,900	75
25-2022	Middle School Teachers, Except Special and Career/ Technical Education	Bachelor's degree	610	\$47,900	75
51-8031	Water and Wastewater Treatment Plant and System Operators	High school diploma or equivalent	286	\$39,600	75
17-2141	Mechanical Engineers	Bachelor's degree	275	\$89,900	69
13-1071	Human Resources Specialists	Bachelor's degree	347	\$48,900	68
15-1132	Software Developers, Applications	Bachelor's degree	283	\$77,500	68
29-1171	Nurse Practitioners	Master's degree	133	\$86,700	67
11-3031	Financial Managers	Bachelor's degree	340	\$92,600	66
11-9141	Property, Real Estate, and Community Association Managers	High school diploma or equivalent	182	\$58,200	66
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	High school diploma or equivalent	172	\$39,300	65

Source: JobsEQ®

## GO VA Region One – Growth & Diversification Plan (August, 2017)

The table below presents the top thirty occupations, based on total annual demand projected, for occupations that meet the criteria of significance or dominance in at least one of the key regional sectors and have average wages above the regional average of \$33,865. Eighteen of the top thirty occupations are attainable with less than an associate's degree, including heavy and tractor-trailer truck drivers; industrial machinery mechanics; welders, cutters, solderers, and brazers; machinists; and computer user support specialists. Web developers typically require an associate's degree, and the remaining 11 occupations typically require a bachelor's degree, including general and operations managers; computer systems analysts; mechanical engineers; and software developers.

**GO VA 1 Top 30 Occupations Supporting Key Drivers with Above-Average Wages**

SOC	Title	Typical Education Need For Entry	Current Employment 2017Q1	Avg. Annual Wages 2016	Total Annual Demand Over the Next 10 Years
11-1021	General and Operations Managers	Bachelor's degree	1,606	\$87,000	334
53-3032	Heavy and Tractor-Trailer Truck Drivers	Postsecondary non-degree award	2,409	\$37,300	283
49-9041	Industrial Machinery Mechanics	High school diploma or equivalent	617	\$42,000	188
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	624	\$38,000	146
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	874	\$53,100	105
51-4041	Machinists	High school diploma or equivalent	360	\$36,000	95
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma or equivalent	933	\$37,800	95
15-1121	Computer Systems Analysts	Bachelor's degree	357	\$67,900	75
17-2141	Mechanical Engineers	Bachelor's degree	275	\$89,900	69
15-1132	Software Developers, Applications	Bachelor's degree	283	\$77,500	68
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	High school diploma or equivalent	172	\$39,300	65
47-2111	Electricians	High school diploma or equivalent	475	\$43,300	61
15-1151	Computer User Support Specialists	Some college, no degree	395	\$41,500	55
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	417	\$56,700	49
43-5061	Production, Planning, and Expediting Clerks	High school diploma or equivalent	251	\$40,300	45
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	Bachelor's degree	247	\$57,100	40
49-9051	Electrical Power-Line Installers and Repairers	High school diploma or equivalent	99	\$59,700	40
17-2112	Industrial Engineers	Bachelor's degree	196	\$69,800	38
47-1011	Supervisors of Construction and Extraction Workers	High school diploma or equivalent	758	\$61,000	38
51-1011	First-Line Supervisors of Production and Operating Workers	High school diploma or equivalent	791	\$55,200	34
11-3051	Industrial Production Managers	Bachelor's degree	172	\$100,900	32
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	High school diploma or equivalent	268	\$45,600	31
11-3021	Computer and Information Systems Managers	Bachelor's degree	193	\$94,000	29
15-1133	Software Developers, Systems Software	Bachelor's degree	183	\$82,000	27
11-3121	Human Resources Managers	Bachelor's degree	78	\$98,100	23
51-9199	Production Workers, All Other	High school diploma or equivalent	217	\$34,100	22
27-1024	Graphic Designers	Bachelor's degree	128	\$36,000	22
15-1134	Web Developers	Associate's degree	65	\$62,700	21
51-9011	Chemical Equipment Operators and Tenders	High school diploma or equivalent	94	\$46,600	21
47-5013	Service Unit Operators, Oil, Gas, and Mining	Less than high school	76	\$63,100	20

## POTENTIAL INDUSTRY TARGETS

Based on the analysis of industries in GO VA 1 and identification of the regional strengths raised at community meetings, ***the following industries and clusters are presented as potential industry targets that can provide above-average wages for residents in the region:***

Key Targets for GO VA Region One				
	Advanced Manufacturing	Food and Beverage Manufacturing	Energy and Minerals	Information Technology
Location Quotient	1.48	3.41	3.20	0.53
Average Annual Wage	\$43,514	\$41,710	\$71,666	\$38,400
Employment	17,025	1,353	7,215	2,146
Export Sector	✓	✓	✓	✓
	The region possesses above-average wages and competitive advantages in many manufacturing industries.	Prominence of agriculture in the region creates a fertile environment to attract food and beverage manufacturers to the area.	High wages and competitive advantages showcase the importance of energy to the region.	Defined at an occupation level due to their importance across many industries. CGI, DP Facilities South, and Northrop Grumman are examples of this emerging cluster.
Source: JobsEQ & Chmura				

Although tourism was mentioned during the community meetings as a potential cluster, it was not chosen because of its relatively low wages compared with the region's average. Similarly, health care was not chosen as a potential target because it generally grows with the region's population and is not targeted by economic developers for expansion into a region.

The analysis in this section considers whether a sufficient number of workers are in the GO VA 1 region or labor shed with the skills needed to attract the target industries. The threshold for an ample supply of workers varies across industries and occupations, but a general threshold of a ratio of at least 50:1 of potential candidates (employed plus unemployed) to the new employer demand is used. If gaps exist for occupations that the new firms would require, the number of individuals in an alternative occupation that could be trained for the occupation in demand is considered (referred to below as extended employment) along with new graduates in the region that possess the required skills.

### Advanced Manufacturing

There is no standard definition of advanced manufacturing. Some would argue that all manufacturing industries are transforming toward "advanced" with the use of total quality management, statistical process control, and just-in-time inventories.

Four industries within the advanced manufacturing cluster are examined to illustrate potential regional labor pool and supply chain capacity and gaps with the advanced manufacturing cluster. The four industries—transportation equipment manufacturing; plastics and rubber products manufacturing;

## GO VA Region One – Growth & Diversification Plan (August, 2017)

chemical manufacturing; and electrical equipment, appliance, and component manufacturing—were chosen because they pay above-average wages and account for a significant share of regional employment (as indicated by the location quotients). All four industries except electrical equipment manufacturing have experienced employment growth over the past five years despite overall decline in manufacturing in the region.

Illustrative Advanced Manufacturing Industries, Four Quarters Ending 2017Q1							
NAICS	Manufacturing	GO VA 1			GO VA 1 Labor Shed		
		Employment	Avg. Annual Wages	Location Quotient	Employment	Avg. Annual Wages	Location Quotient
325	Chemical	829	\$49,885	1.11	11,437	\$82,336	3.76
336	Transportation Equipment	3,749	\$42,149	2.47	9,495	\$57,969	1.54
326	Plastics and Rubber Products	1,427	\$53,183	2.23	4,778	\$50,896	1.84
335	Electrical Equipment, Appliance, and Components	1,149	\$51,603	3.28	5,911	\$56,648	4.16
Source: JobsEQ®							

### Chemical Manufacturing

If a chemical manufacturing firm needing 100 employees were to consider expanding into the region, it would find that the labor force of GO VA 1 has a few occupations with low potential candidates (shaded in red in the table below). Among the top 10 occupations typically required in this industry, GO VA 1 has ample supply for four occupations. The lowest ratio of potential candidates to openings is for chemists, followed by mixing and blending machine setters, operators, and tenders; chemical plant and system operators; and chemical engineers. However, there is ample supply for all of the top 10 occupations in the GO VA 1 labor shed.

What-If Report for Chemical Manufacturing (100 workers)										
Occ Code	Title	New Employer Demand	GO VA 1 Empl <sup>1</sup>	Empl GO VA 1 Labor Shed <sup>1</sup>	GO VA 1 Unempl <sup>1</sup>	Labor Shed Unempl <sup>1</sup>	Regional Avg Wage <sup>2</sup>	Empl Extended	GO VA 1 Ratio	Labor Shed Ratio
51-9011	Chemical Equipment Operators and Tenders	8	191	1190	3	19	\$46,600	145	24	151
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	7	154	676	7	30	\$29,100	454	23	101
51-9111	Packaging and Filling Machine Operators and Tenders	6	394	1174	51	143	\$32,400	6,681	74	220
51-8091	Chemical Plant and System Operators	4	92	569	2	13	\$55,100	446	23	145
19-2031	Chemists	4	57	330	1	6	\$80,400	203	15	84

## GO VA Region One – Growth & Diversification Plan (August, 2017)

51-1011	First-Line Supervisors of Production and Operating Workers	4	854	2818	29	92	\$55,200	1,003	221	727
19-4031	Chemical Technicians	3	78	433	2	10	\$42,700	193	27	148
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3	669	2208	53	165	\$33,200	1,887	241	791
17-2041	Chemical Engineers	2	44	291	1	8	\$92,700	206	23	150
11-1021	General and Operations Managers	2	1679	6386	50	175	\$87,000	6,010	865	3280

Source: JobsEQ. Occupation employment and unemployment are place-of-residence data. Occupation wages are as of 2016 and represent the average for all Covered Employment. Data as of 2017Q1 unless noted otherwise.  
 Note: Employment extended refers to regional workers with skills similar to the specified occupation and currently or previously employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation.

Most of the occupations with the highest average wages typically require postsecondary education, and are potentially under-supplied with lower candidate-to-opening ratios. In particular, chemists, chemical technicians, and chemical engineers typically require a bachelor's degree and have low ratios in GO VA 1. However, there is ample supply in the GO VA 1 labor shed, and, as shown in the table that follows, higher education institutions in the region graduated more than 300 people in the 2014-2015 academic year with degrees that would enable them to fill these positions.

Regional Postsecondary Programs for Chemical Manufacturing Related Occupations			
Title/School	Annual Awards - GO VA Region 1 Labor Shed		
	Certificates and 2yr Degrees	4yr Degrees	Postgraduate Degrees
<b>40.0501 Chemistry, General</b>			
Concord University	0	15	0
East Tennessee State University	0	49	6
Emory & Henry College	0	8	0
Hollins University	0	2	0
King University	0	2	0
Radford University	0	10	0
Roanoke College	0	3	0
University of Pikeville	0	3	0
Virginia Polytechnic Institute and State University	0	54	27
<b>41.0301 Chemical Technology/Technician</b>			
Northeast State Community College	8	0	0
<b>14.0701 Chemical Engineering</b>			
Virginia Polytechnic Institute and State University	0	107	8
<b>Total</b>			
Total	8	253	41

### Transportation Equipment Manufacturing

In the case of a hypothetical location or expansion of a transportation equipment manufacturing firm needing 100 employees, the labor force of GO VA 1 has a sufficient supply of potential candidates for the top occupations. Among the top 10 occupations typically required in this industry, GO VA 1 has ample supply for eight occupations. The lowest ratio of potential candidates to openings is for aerospace engineers; and aircraft structure, surfaces, rigging, and systems assemblers. However, as shown in the table below, there is a large potential candidate-to-opening ratio for all of the top 10 occupations in the GO VA 1 labor shed.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

What-If Report for Transportation and Equipment Manufacturing (100 workers)										
Occ Code	Title	New Employer Demand	GO VA 1 Empl <sup>1</sup>	Empl GO VA 1 Labor Shed <sup>1</sup>	GO VA 1 Unempl <sup>1</sup>	Labor Shed Unempl <sup>1</sup>	Regional Avg Wage <sup>2</sup>	Empl Extended	GO VA 1 Ratio	Labor Shed Ratio
51-2092	Team Assemblers	19	2026	6799	221	732	\$27,300	50	118	396
51-1011	First-Line Supervisors of Production and Operating Workers	4	854	2818	29	92	\$55,200	1,003	221	727
51-4121	Welders, Cutters, Solderers, and Brazers	4	635	1790	57	150	\$38,000	5,933	173	485
17-2112	Industrial Engineers	3	207	898	6	24	\$69,800	627	71	307
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3	669	2208	53	165	\$33,200	1,887	241	791
51-4041	Machinists	3	402	1445	25	84	\$36,000	611	142	510
17-2011	Aerospace Engineers	2	40	112	1	2	\$101,400	576	20	57
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	2	42	86	3	6	\$46,600	0	23	46
51-2099	Assemblers and Fabricators, All Other	2	360	1062	53	152	\$30,300	0	207	607
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	2	175	536	11	31	\$39,300	442	93	283
Source: JobsEQ. Occupation employment and unemployment are place-of-residence data. Occupation wages are as of 2016 and represent the average for all Covered Employment. Data as of 2017Q1 unless noted otherwise. Note: Employment extended refers to regional workers with skills similar to the specified occupation and currently or previously employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation.										

Seven of the top 10 occupations pay above-average wages, but typically require a bachelor's degree or moderate- to long-term on-the-job training. These occupations include welders, cutters, solderers, and brazers; industrial engineers; machinists; and aerospace engineers. However, there is ample supply in the GO VA 1 labor shed, and, as shown in the table that follows, higher education institutions in the region graduated more than 1,400 people in the 2014-2015 academic year with awards related to these positions.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Regional Postsecondary Programs for Transportation Equipment Manufacturing Related Occupations			
Title/School	Annual Awards - GO VA Region 1 Labor Shed		
	Certificates and 2yr Degrees	4yr Degrees	Postgraduate Degrees
<b>48.0508 Welding Technology/Welder</b>			
Mercer County Technical Education Center	41	0	0
Mountain Empire Community College	11	0	0
New River Community College	20	0	0
Northeast State Community College	15	0	0
Southwest Virginia Community College	45	0	0
Surry Community College	60	0	0
Virginia Highlands Community College	8	0	0
Virginia Western Community College	17	0	0
Washington County Adult Skill Center	17	0	0
<b>14.3501 Industrial Engineering</b>			
Virginia Polytechnic Institute and State University	0	211	46
<b>15.1503 Packaging Science</b>			
Virginia Polytechnic Institute and State University	0	12	0
<b>48.0501 Machine Tool Technology/Machinist</b>			
Washington County Adult Skill Center	12	0	0
<b>48.0503 Machine Shop Technology/Assistant</b>			
Northeast State Community College	5	0	0
Surry Community College	8	0	0
<b>14.0201 Aerospace, Aeronautical and Astronautical/Space Engineering</b>			
Virginia Polytechnic Institute and State University	0	171	42
<b>14.1001 Electrical and Electronics Engineering</b>			
Virginia Polytechnic Institute and State University	0	128	96
<b>14.1901 Mechanical Engineering</b>			
Virginia Polytechnic Institute and State University	0	384	84
<b>Total</b>			
Total	259	906	268

### Plastics and Rubber Products Manufacturing

The GO VA One region is generally well-equipped to handle an expansion or relocation of a plastics and rubber products manufacturing firm. The typical occupation mix for a plastics and rubber products manufacturing company primarily consists of production occupations and transportation and material moving occupations. The demand and regional labor supply is shown in the following table for an expansion of 100 employees in this industry. Among the top 10 occupations typically required in this industry, GO VA 1 has ample supply for seven occupations. The lowest ratio of potential candidates to openings is for tire builders; molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic; and extruding and drawing machine setters, operators, and tenders, metal and plastic. However, as shown in the table below, there is a large potential candidate-to-opening ratio for all of the top 10 occupations in the GO VA 1 labor shed.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

What-If Report for Plastics and Rubber Products Manufacturing (100 workers)										
Occ Code	Title	New Employer Demand	GO VA 1 Empl <sup>1</sup>	GO VA 1 Labor Shed <sup>1</sup>	GO VA 1 Unempl <sup>1</sup>	Labor Shed Unempl <sup>1</sup>	Regional Avg Wage <sup>2</sup>	Empl Extended	GO VA 1 Ratio	Labor Shed Ratio
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	10	232	766	12	38	\$34,800	767	24	80
51-2092	Team Assemblers	8	2,026	6,799	221	732	\$27,300	50	281	941
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	5	122	460	5	17	\$35,400	87	25	95
51-1011	First-Line Supervisors of Production and Operating Workers	5	854	2,818	29	92	\$55,200	1,003	177	582
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	4	669	2,208	53	165	\$33,200	1,887	181	593
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	3	240	900	19	68	\$37,100	6,125	86	323
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	3	183	501	7	19	\$32,100	2,574	63	173
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	3	2,204	8,490	356	1249	\$24,000	7	853	3,246
53-7064	Packers and Packagers, Hand	3	671	2,308	108	349	\$22,400	3,745	260	886
51-9197	Tire Builders	3	41	243	1	4	\$37,500	0	14	82

Source: JobsEQ. Occupation employment and unemployment are place-of-residence data. Occupation wages are as of 2016 and represent the average for all Covered Employment. Data as of 2017Q1 unless noted otherwise.

Note: Employment extended refers to regional workers with skills similar to the specified occupation and currently or previously employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation.

All of the top 10 occupations typically require a high school diploma or less. Five of the top 10 occupations pay above-average wages, with no postsecondary education typically required but moderate-term on-the-job training. These occupations include first-line supervisors of production and operating workers; tire builders; metal and plastic machine setters, operators, and tenders.

### Electrical Equipment, Appliance, and Component Manufacturing

The GO VA One region is generally well-equipped to handle an expansion or relocation of an electrical equipment, appliance, and component manufacturing firm. The typical occupation mix for this industry primarily consists of production occupations and transportation and material moving occupations. The demand and regional labor supply is shown in the following

## GO VA Region One – Growth & Diversification Plan (August, 2017)

table for an expansion of 100 employees in this industry. Among the top 10 occupations typically required in this industry, GO VA 1 has ample supply for seven occupations. The lowest ratio of potential candidates to openings is for coil winders, tapers, and finishers; electrical and electronic equipment assemblers; and electromechanical equipment assemblers. However, as shown in the table below, there is an ample supply of potential candidates relative to expected demand for all of the top 10 occupations in the GO VA 1 labor shed.

<b>What-If Report for Electrical Equipment, Appliance, and Component Manufacturing (100 workers)</b>										
<b>Occ Code</b>	<b>Title</b>	<b>New Employer Demand</b>	<b>GO VA 1 Empl<sup>1</sup></b>	<b>Empl GO VA 1 Labor Shed<sup>1</sup></b>	<b>GO VA 1 Unempl<sup>1</sup></b>	<b>Labor Shed Unempl<sup>1</sup></b>	<b>Regional Avg Wage<sup>2</sup></b>	<b>Empl Extended</b>	<b>GO VA 1 Ratio</b>	<b>Labor Shed Ratio</b>
51-2092	Team Assemblers	13	2,026	6,799	221	732	\$27,300	50	173	579
51-2022	Electrical and Electronic Equipment Assemblers	12	233	1,069	20	91	\$32,300	35	21	97
51-1011	First-Line Supervisors of Production and Operating Workers	4	854	2,818	29	92	\$55,200	1,003	221	727
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3	669	2,208	53	165	\$33,200	1,887	241	791
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	3	2,204	8,490	356	1249	\$24,000	7	853	3,246
51-2021	Coil Winders, Tapers, and Finishers	2	35	158	2	11	\$33,400	1,835	19	85
43-4051	Customer Service Representatives	2	3,129	10,648	263	807	\$25,300	2,675	1,696	5727
17-2071	Electrical Engineers	2	99	588	2	10	\$91,500	713	50	299
51-2023	Electromechanical Equipment Assemblers	2	57	224	5	19	\$38,400	64	31	121
11-1021	General and Operations Managers	2	1,679	6,386	50	175	\$87,000	6,010	865	3,280
Source: JobsEQ. Occupation employment and unemployment are place-of-residence data. Occupation wages are as of 2016 and represent the average for all Covered Employment. Data as of 2017Q1 unless noted otherwise. Note: Employment extended refers to regional workers with skills similar to the specified occupation and currently or previously employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation.										

Eight of the top 10 occupations typically require a high school diploma or less for entry. Five of the top 10 occupations pay above-average wages, though the highest-paying jobs typically require a bachelor's degree or moderate- to long-term on-the-job training. These occupations include electrical engineers; general and operations managers; and first-line supervisors of production and operating workers.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Food and Beverage Manufacturing

Agriculture is an important industry in the GO VA 1 region. Twenty-two percent of the state's farms are in the GO VA 1 region with cattle and calve sales exceeding \$253 million and total crop sales at \$49.7 million.\*

Agriculture in GO VA 1, 2012		
	GO VA 1 Total	Percent in Virginia
Farms	9,750	21%
Farmland (acres)	1,546,658	19%
Milk from Cows (\$)	\$25,733,000	7%
Cattle & Calves Sold	282,289	33%
Cattle & Calves Sold (\$)	\$253,569,000	36%
Total Crop Sales (\$)	\$49,673,000	4%
Total Livestock Sales (\$)	\$314,567,000	13%
Source: Census of Agriculture (2012)		

Virginia farms increased in average size from 2007 to 2012. While the number of farms decreased from 2007 to 2012 in the state (-2.9%) and the GO VA One region (-4.7%), the total farmland acreage increased in Virginia (+2.4%) and the GO VA One region (+6.7%).\* At the national level, the number of farms declined 4.3% and farmland decreased 0.8% over the same five-year period.\* These changes suggest that Virginia and the GO VA One region have strengthened their competitive advantage in agriculture.

Food and beverage manufacturing is a natural extension to the agriculture industry that would bring jobs at various skill levels. One specific industry within food and beverage manufacturing, animal slaughtering and processing, is explored because of the stated need of local farmers for such a facility since they currently ship cattle to the Midwest for slaughtering and processing. Food and beverage manufacturing, in general, is also explored as a target industry.

### Animal Slaughtering and Processing

The labor force of GO VA 1 would be fairly well prepared for a hypothetical location or expansion of an animal slaughtering and processing firm, with a few exceptions. For this analysis, Chmura used a need for 20 employees by a firm in this industry as a stress test for the region's labor force.\* Among the top 10 occupations typically required in this industry, GO VA 1 has ample supply for seven occupations. Though GO VA 1 has short supply of two occupations – meat, poultry, and fish cutters and trimmers; and slaughterers and meat packers—the labor shed has sufficient employment to offer a favorable candidate/opening ratio. Additionally, there is a potential supply for the top two occupations of workers currently employed in other industries with similar skills and comparable wages (employment extended).

\* These figures should be considered conservative as cities are not included in the Census dataset, and non-disclosed data are mostly counted as zero. For example, there were 940 cattle and calves sold in Wise County in 2012, but the market value from these sales is withheld to avoid disclosing data for individual farms. To be conservative, Chmura has counted this non-disclosed value as zero in our analysis.

\* Source: Census of Agriculture (2007 & 2012)

\* Ibid.

\* County Business Patterns from the U.S. Census indicate about 60% of establishments in this industry have 19 or fewer employees.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

What-If Report for Animal Slaughtering and Processing (20 workers)										
Occ Code	Title	New Employer Demand	GO VA 1 Empl <sup>1</sup>	GO VA 1 Labor Shed Empl <sup>1</sup>	GO VA 1 Unempl <sup>1</sup>	Labor Shed Unempl <sup>1</sup>	Regional Avg Wage <sup>2</sup>	Empl Extended	GO VA 1 Candidate/Opening Ratio	Labor Shed Candidate/Opening Ratio
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	5	62	282	5	19	\$23,300	3,157	13	60
51-3023	Slaughtering and Meat Packers	3	19	108	1	7	\$25,400	915	7	38
51-3021	Butchers and Meat Cutters	1	189	556	21	58	\$26,100	2,953	210	614
51-1011	First-Line Supervisors of Production and Operating Workers	1	854	2,818	29	92	\$55,200	1,003	883	2,909
51-3092	Food Batchmakers	1	85	369	4	18	\$26,100	675	89	387
51-3099	Food Processing Workers, All Other	1	33	116	3	10	\$23,700	0	36	125
51-9198	Helpers--Production Workers	1	417	1567	56	194	\$26,600	3,968	474	1,762
49-9041	Industrial Machinery Mechanics	1	646	1873	24	64	\$42,000	2,780	670	1,938
53-7051	Industrial Truck and Tractor Operators	1	628	2100	44	133	\$30,900	3,963	672	2,233
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1	669	2,208	53	165	\$33,200	1,887	723	2,373

Source: JobsEQ. Occupation employment and unemployment are place-of-residence data. Occupation wages are as of 2016 and represent the average for all Covered Employment. Data as of 2017Q1 unless noted otherwise.  
 Note: Employment extended refers to regional workers with skills similar to the specified occupation and currently or previously employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation.

The top 10 occupations needed in the animal slaughtering and processing industry have low education requirements and most pay below-average wages. All of the top 10 occupations typically require a high school diploma or less, though they may require experience and on-the-job training. Two of the occupations pay wages above the regional average: first-line supervisors of production and operating workers (\$55,200); and industrial machinery mechanics (\$42,000).

### Food and Beverage Manufacturing

Food and beverage manufacturers in the GO VA 1 region pay an annual average wage of \$41,710, which is higher than the average wage (\$33,865) in the region. It is also an industry that generally does not experience declines during recessions thus providing stability to a regional economy.

As is true of all industries, attracting companies in this industry requires that the region demonstrate its sufficient labor availability. The GO VA 1 region is generally well-equipped to handle an expansion of food and beverage manufacturing. The typical occupation mix for a food and beverage manufacturing company primarily includes production and transportation and material moving occupations. The demand and regional labor supply is shown in the following table for a food and beverage manufacturing company that expects to hire 100 workers (only occupations with employer demand greater than one are shown).

## GO VA Region One – Growth & Diversification Plan (August, 2017)

The average wage of all occupations associated with a typical food and beverage manufacturing expansion of 100 employees is \$31,308, slightly below the regional average wage of \$33,865 but higher than the lowest average annual wage in the region, which is \$27,452 in Grayson County. The typical entry-level education for most of these occupations is a high school degree or less. Only six of the 100 jobs in the expansion typically require an award or degree (managers, scientists, and truck drivers).

While the majority of these jobs require no previous experience, on-the-job training is key to occupations in this industry. Of the 100 new jobs created by a food and beverage manufacturing expansion, 46 workers typically require short-term on-the-job training, and another 37 employees require moderate-term on-the-job training. Nine workers (bakers, industrial machinery mechanics, maintenance and repair workers, and butchers and meat cutters) will require long-term training and another eight employees (supervisors, managers, and scientists) typically do not require on-the-job training.

Three of the top four in-demand occupations for a food and beverage manufacturer are food processing workers (SOC 51-3000). When comparing the food and beverage manufacturer's new demand with the region's labor supply, food processing workers are also the only occupation with a clear gap in supply. When the region is expanded to the labor shed, the gap dissipates in all but three of the top occupations: meat, poultry, and fish cutters and trimmers (43 potential candidates per opening); slaughterers and meat packers (29 potential candidates per opening); and food cooking machine operators and tenders (45 potential candidates per opening).

To ensure there are enough workers to fill all the openings, the food and beverage manufacturer would likely need to attract and upskill people in the extended labor supply, defined as regional workers with skills similar to the specified occupation and currently or previously employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation. When the extended labor supply is added to the potential candidate pool, there are no gaps for the food and beverage manufacturing industry in the labor shed.

**What-If Report for GO VA Region One & Labor Shed, NAICS 311 & 312: Food & Beverage Manufacturing (100 Workers)**

SOC	Title	New Employer Demand	GO VA 1 Empl.	Labor Shed Empl.	GO VA 1 Unempl.	Labor Shed Unempl.	GO VA 1 Average Wages	Labor Shed Average Wages	GO VA 1 Extended Empl.	Labor Shed Extended Empl.	GO VA 1 Extended Unempl.	Labor Shed Extended Unempl.	GO VA 1 Potential Candidate / Opening Ratio	Labor Shed Potential Candidate / Opening Ratio
51-9111	Packaging and Filling Machine Operators and Tenders	9	394	1,174	51	143	\$32,400	\$31,900	6,681	23,789	763	2,630	49	146
51-3092	Food Batchmakers	7	85	369	4	18	\$26,100	\$26,100	675	3,293	58	278	13	55
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	7	62	282	5	19	\$23,300	\$24,200	3,157	9,576	314	909	9	43
51-3011	Bakers	4	166	548	16	49	\$23,500	\$23,800	5,153	17,674	465	1,542	46	149
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	4	2,204	8,490	356	1,249	\$24,000	\$25,700	7	0	3	0	640	2,435
53-7064	Packers and Packagers, Hand	4	671	2,308	108	349	\$22,400	\$21,800	3,745	12,720	389	1,228	195	664
51-3023	Slaughterers and Meat Packers	4	19	108	1	7	\$25,400	\$26,800	915	3,582	120	432	5	29
51-1011	First-Line Supervisors of Production and Operating Workers	3	854	2,818	29	92	\$55,200	\$61,200	1,003	1,879	38	65	294	970
51-9198	Helpers--Production Workers	3	417	1,567	56	194	\$26,600	\$27,300	3,968	13,800	480	1,557	158	587



## GO VA Region One – Growth & Diversification Plan (August, 2017)

53-7051	Industrial Truck and Tractor Operators	3	628	2,100	44	133	\$30,900	\$32,300	3,963	11,332	497	1,525	224	744
51-3093	Food Cooking Machine Operators and Tenders	2	21	76	4	15	\$29,100	\$29,600	1,704	7,136	211	800	12	45
51-3099	Food Processing Workers, All Other	2	33	116	3	10	\$23,700	\$25,100	0	0	0	0	18	63
53-3032	Heavy and Tractor-Trailer Truck Drivers	2	2,562	7,759	145	398	\$37,300	\$39,700	1,427	4,683	111	301	1,353	4,079
49-9041	Industrial Machinery Mechanics	2	646	1,873	24	64	\$42,000	\$46,300	2,780	9,785	136	438	335	969
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2	669	2,208	53	165	\$33,200	\$37,600	1,887	6,832	211	717	361	1,187
49-9071	Maintenance and Repair Workers, General	2	1,324	5,073	62	219	\$32,900	\$35,200	186	1,343	11	76	693	2,646
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	2	154	676	7	30	\$29,100	\$35,500	454	1,772	30	100	81	353
41-2031	Retail Salespersons	2	4,099	16,436	253	938	\$25,300	\$24,900	552	4,586	52	339	2,176	8,687
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2	928	3,869	35	131	\$53,100	\$57,900	110	698	6	26	482	2,000
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2	79	232	2	4	\$24,800	\$34,400	519	931	40	67	41	118

Source: JobsEQ

Occupation employment and unemployment are place-of-residence data—that is, referring to workers who reside in the named locality

### Energy and Minerals

As noted earlier, the energy cluster has a location quotient of 3.2 indicating that employment in the GO VA 1 region is more than three times as concentrated in the region as it is in the nation. Moreover, the annual average wage in the cluster was \$71,666 in the first quarter of 2017—more than double the \$33,865 average wage in the GO VA 1 region.

Unfortunately, 57% of the employment in this strong regional asset is tied to coal mining, which is in decline. Alternative uses for coal may revive the industry at some future date. However, these technologies are still in the research phase and therefore should be considered aspirational. For example, researchers at Virginia Tech are working with industry partners in a \$1 million pilot project funded in part by a U.S. Department of Energy National Energy Technology Laboratory grant to extract rare earth minerals from coal.\* Virginia Tech officials have indicated that they hope to construct a mobile pilot plant in Southwest Virginia to extract these minerals from coal that are in short supply but high demand in advanced manufacturing.

Additional electric power generation and alternative energy sources may also be a source of employment growth for the energy cluster in GO VA 1. Dominion Energy is considering a pumped hydro storage facility in Southwest Virginia coalfields.\* According to company sources, the project is expected to begin in the first quarter of 2018 and could generate approximately 50 jobs when it is in operation.

\* Source: <https://vtnews.vt.edu/articles/2016/03/research-rareearth.html>

\* [http://www.heraldcourier.com/news/dominion-energy-wants-to-build-pumped-hydro-storage-facility-in/article\\_eec0dcf0-6973-50d7-8148-f75541c5fd33.html](http://www.heraldcourier.com/news/dominion-energy-wants-to-build-pumped-hydro-storage-facility-in/article_eec0dcf0-6973-50d7-8148-f75541c5fd33.html)



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Wind and solar projects have also been considered in the GO VA 1 region that would diversify the energy cluster away from its dependence on the coal industry.\* Both industries pay well in the nation. During the first quarter of 2017, the annual average wage in solar electric power generation was \$104,088 and wind electric power generation employees earned an annual average \$95,543.

Industry Snapshot of Energy\_ in GO Virginia Region 1

NAICS	Industry	Current			Historical					Forecast		
		Four Quarters Ending with 2017q1			Total Change over the Last 5 Years	Empl Last 'n' Years	Average Annual % Change in Employment 2012q1-2017q1			Over the Next 10 Years		
		Employment	Avg. Annual Wages	Location Quotient			GO Virginia Region 1	GO Virginia Region 1 Labor Shed	Virginia	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
21111	Oil and Gas Extraction	190	\$105,387	1.13	-178		-12.4%	-11.5%	-9.0%	46	-5	-0.3%
21211	Coal Mining	2,230	\$79,546	51.31	-2,470		-13.9%	-16.3%	-14.0%	426	-433	-2.1%
21231	Stone Mining and Quarrying	402	\$38,715	10.56	12		0.6%	-0.3%	1.4%	75	-53	-1.4%
21232	Sand, Gravel, Clay, and Ceramic and Refractory Minerals Mining and Quarrying	0	n/a	0.00	-3		n/a	6.8%	0.5%	0	0	-2.0%
21311	Support Activities for Mining	589	\$54,936	2.57	-869		-16.6%	-16.8%	-14.7%	149	-3	0.0%
22111	Electric Power Generation	186	\$68,370	1.08	22		2.5%	-4.1%	-2.7%	44	-35	-2.0%
22112	Electric Power Transmission, Control, and Distribution	166	\$61,376	0.62	40		5.6%	2.0%	1.0%	38	-41	-2.8%
22121	Natural Gas Distribution	12	\$67,193	0.11	-2		-3.2%	0.6%	2.6%	3	-2	-2.1%
32411	Petroleum Refineries	0	n/a	0.00	0		n/a	n/a	-0.4%	0	0	-1.9%
32412	Asphalt Paving, Roofing, and Saturated Materials Manufacturing	4	\$56,187	0.16	-54		-41.8%	-25.8%	1.1%	1	0	-1.0%
32419	Other Petroleum and Coal Products Manufacturing	68	\$82,906	4.60	18		6.4%	6.4%	-1.9%	17	-13	-2.1%
48621	Pipeline Transportation of Natural Gas	62	\$82,221	2.29	16		6.3%	-0.3%	4.7%	17	-5	-0.9%
48691	Pipeline Transportation of Refined Petroleum Products	2	\$74,511	0.32	-6		-22.0%	9.3%	-1.4%	1	0	-1.8%
	Energy_	3,912	\$71,666	3.20	-3,474		-11.9%	-12.1%	-3.5%	n/a	-591	-1.6%
	Total - All Industries	139,464	\$33,865	1.00	-11,009		-1.5%	-0.1%	1.0%	33,025	-6,261	-0.5%

Source: JobsEQ®

Data as of 2017Q1

Note: Figures may not sum due to rounding.

## Information Technology

With the large investment of broadband in the region and expansion of Northrop Grumman and CGI into Lebanon, Virginia over the last decade, information technology occupations are an emerging driver of growth in the region, though not necessarily tied to a particular sector. Technology skills are increasingly needed in every industry to stay competitive. However, the growing concentration of information technology skills in the region points to an opportunity to attract firms that need such skills.

\* [http://www.richmond.com/business/southwest-virginia-from-coal-power-to-wind-power/article\\_87431ec9-a7fb-533f-afaa-09fbfb3f10dd.html](http://www.richmond.com/business/southwest-virginia-from-coal-power-to-wind-power/article_87431ec9-a7fb-533f-afaa-09fbfb3f10dd.html)

## GO VA Region One – Growth & Diversification Plan (August, 2017)

As shown in the table below, computer and math occupations pay a much higher wage than that of the GO VA 1 region—\$64,000 compared to \$38,400. With 2,146 people in the region working in computer and math occupations, the location quotient (LQ) for the occupation is 0.53 meaning that workers with these skills have a concentration half that found in the nation, on average. The LQ for the labor shed is a bit higher at 0.61. Consequently, attracting firms that need computer and math talent is an aspirational strategy.

Occupation Snapshot of Computer and Mathematical Occupations, Four Quarters Ending with 2017q1							
GO Virginia Region 1				GO Virginia Region 1 Labor Shed			
SOC	Title	Empl	Avg. Annual Wages <sup>1</sup>	Location Quotient	Empl	Avg. Annual Wages <sup>1</sup>	Location Quotient
15-1111	Computer and Information Research Scientists	9	\$88,400	0.33	52	\$94,200	0.48
15-1121	Computer Systems Analysts	357	\$67,900	0.65	1,469	\$73,700	0.66
15-1122	Information Security Analysts	46	\$65,400	0.49	231	\$71,300	0.60
15-1131	Computer Programmers	128	\$51,700	0.47	678	\$75,300	0.62
15-1132	Software Developers, Applications	283	\$77,500	0.36	1,444	\$82,600	0.46
15-1133	Software Developers, Systems Software	183	\$82,000	0.45	763	\$88,800	0.46
15-1134	Web Developers	65	\$62,700	0.44	313	\$58,400	0.52
15-1141	Database Administrators	68	\$66,600	0.61	453	\$62,100	1.01
15-1142	Network and Computer Systems Administrators	225	\$64,100	0.63	1,114	\$67,700	0.77
15-1143	Computer Network Architects	75	\$78,500	0.49	410	\$80,600	0.66
15-1151	Computer User Support Specialists	395	\$41,500	0.70	1,666	\$43,000	0.72
15-1152	Computer Network Support Specialists	117	\$48,700	0.66	560	\$54,500	0.78
15-1199	Computer Occupations, All Other	115	\$66,600	0.46	515	\$77,200	0.51
15-2011	Actuaries	7	\$88,700	0.35	39	\$93,800	0.49
15-2021	Mathematicians	1	\$80,200	0.37	6	\$85,100	0.62
15-2031	Operations Research Analysts	55	\$71,100	0.52	243	\$72,600	0.57
15-2041	Statisticians	17	\$58,700	0.48	86	\$63,400	0.61
15-2091	Mathematical Technicians	0		0.00	2	\$46,600	0.85
15-2099	Mathematical Science Occupations, All Other	1	\$56,100	0.57	5	\$60,100	0.72
15-0000	Computer and Mathematical Occupations	2,146	\$64,000	0.53	10,050	\$69,600	0.61
00-0000	Total - All Occupations	139,464	\$38,400	1.00	565,860	\$41,600	1.00

[Source: JobsEQ®](#)

Note: Figures may not sum due to rounding.

1. Occupation wages are as of 2016 and should be taken as the average for all Covered Employment

Two industries are considered under the information technology cluster as potentials for business attraction:

- Computer Systems Design (Cybersecurity)
- Data Centers

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Computer Systems Design (Cybersecurity)

Absent from the above list of occupations is cybersecurity. Although firms across almost all industry types are adding positions in cybersecurity, the Bureau of Labor Statistics has not yet classified it within its standard occupation classification (SOC) system. However, based on JobsEQ Real Time Intelligence (RTI), the vast majority of job posts that describe a need for cybersecurity skills are also categorized as information security analysts (SOC 15-1122). The computer systems design and related services industry employs the largest share of information security analysts (27.3%).

Within the Go VA 1 labor shed, these firms employed 2,723 people in the first quarter of 2017 at an annual average wage of \$90,700.

If a computer systems design and related services firm with 200 employees were to expand to the GO VA 1 region, they would find a sufficient number of applicants with the skills needed. The potential candidate to opening ratio in the column below highlights in green all occupations where there are at least 50 employed in the region for every 1 the expanding firm is expected to hire. This 50 to 1 ratio is used by expanding firms and site selectors as a baseline to ensure skilled workers can be hired in the region.

What-If Report for GO Virginia Region 1 Labor Shed, NAICS 5415 - Computer Systems Design and Related Services, 200 Employees									
Occ Code	Top 20 Occupations	New Employer Demand	Empl (Place of Residence) <sup>1</sup>	Unempl <sup>1</sup>	Regional Avg Wage <sup>2</sup>	National Avg Wage <sup>2</sup>	Empl Extended	Unempl Extended	Potential Candidate / Opening Ratio
15-1132	Software Developers, Applications	29	1,374	31	\$82,600	\$104,300	5,084	183	48
15-1121	Computer Systems Analysts	18	1,381	53	\$73,700	\$91,600	2,673	104	80
15-1151	Computer User Support Specialists	13	1,583	78	\$43,000	\$53,100	1,142	75	128
15-1133	Software Developers, Systems Software	13	737	17	\$88,800	\$110,600	6,553	212	58
15-1131	Computer Programmers	12	618	37	\$75,300	\$85,200	2,274	88	55
11-3021	Computer and Information Systems Managers	8	718	24	\$118,900	\$145,700	2,479	82	93
15-1142	Network and Computer Systems Administrators	7	1,045	28	\$67,700	\$84,500	2,794	85	153
11-1021	General and Operations Managers	6	6,386	175	\$99,000	\$122,100	19,454	493	1,093
41-3099	Sales Representatives, Services, All Other	6	2,303	89	\$50,900	\$63,100	0	0	399
15-1199	Computer Occupations, All Other	5	493	19	\$77,200	\$88,900	5,855	271	102
15-1143	Computer Network Architects	4	379	4	\$80,600	\$104,200	5,823	171	96
15-1152	Computer Network Support Specialists	4	523	25	\$54,500	\$67,800	0	0	137
43-4051	Customer Service Representatives	4	10,648	807	\$27,900	\$35,200	10,065	791	2,864
13-1111	Management Analysts	4	1,417	64	\$88,800	\$91,900	7,870	274	370
13-1199	Business Operations Specialists, All Other	3	1,996	77	\$63,900	\$74,900	1,791	62	691
15-1122	Information Security Analysts	3	225	6	\$71,300	\$96,000	5,902	186	77
11-9199	Managers, All Other	3	2,153	18	\$99,600	\$112,200	7,177	257	724
13-1161	Market Research Analysts and Marketing Specialists	3	1,198	46	\$59,300	\$70,600	8,838	324	415
43-9061	Office Clerks, General	3	11,127	742	\$29,400	\$33,000	19,661	1,009	3,956
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	3	816	31	\$83,200	\$92,900	5,043	172	283
Source: JobsEQ®									
1. Occupation employment and unemployment are place-of-residence data--that is, referring to workers who reside in the named locality.									
2. Occupation wages are as of 2016 and represent the average for all Covered Employment									
Data as of 2017Q1 unless noted otherwise									
Note: Figures may not sum due to rounding.									

Note: Employment extended refers to regional workers with skills similar to the specified occupation and currently employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation.

The candidate-to-opening ratio for applied software developers is slightly below 50. However, as shown in the table that follows, higher education institutions in the region graduated 287 people in the 2014-2015 academic year with degrees that would enable them to fill these positions.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Regional Postsecondary Programs for Software Developers			
Annual Awards - GO VA Region 1 Labor Shed			
Title/School	Certificates and 2yr Degrees	4yr Degrees	Postgraduate Degrees
<b>11.0103 Information Technology</b>			
American National University	0	2	0
King University	0	49	0
Surry Community College	19	0	0
Virginia Highlands Community College	0	0	0
<b>11.0201 Computer Programming/Programmer, General</b>			
American National University	0	0	0
ITT Technical Institute-Johnson City	0	0	0
ITT Technical Institute-Salem	0	0	0
Surry Community College	0	0	0
<b>11.0202 Computer Programming, Specific Applications</b>			
Surry Community College	4	0	0
<b>11.0701 Computer Science</b>			
Radford University	0	62	0
Roanoke College	0	2	0
The University of Virginia's College at Wise	0	6	0
<b>14.0901 Computer Engineering, General</b>			
Virginia Polytechnic Institute and State University	0	77	55
<b>14.0903 Computer Software Engineering</b>			
The University of Virginia's College at Wise	0	5	0
<b>26.1103 Bioinformatics</b>			
King University	0	0	0
Virginia Polytechnic Institute and State University	0	0	6
<b>51.2706 Medical Informatics</b>			
Jefferson College of Health Sciences	0	0	0
King University	0	0	0
<b>Total</b>			
Total	23	203	61
<a href="#">Source: JobsEQ®</a>			
Data as of the 2014-2015 academic year			

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Data Centers

DP Facilities South invested \$65 million in Wise County on a 22-acre site to construct a Mission Critical Tier III Data Center.\* The site, which officially opened in April 2017, employs 40 people.\* The broadband fiber in the area and low cost of living relative to Northern Virginia where many data centers are clustered, make the GO VA 1 region attractive for additional data centers.

If a data center with 50 employees were to expand to the GO VA 1 region, they would find a sufficient number of applicants with the skills needed. The potential candidate to opening ratio in the column below highlights in green all occupations where there are at least 50 employed in the region for every 1 the expanding firm is expected to hire. This 50 to 1 ratio is used by expanding firms and site selectors as a baseline to ensure skilled workers can be hired in the region.

**What-If Report for GO VA 1 Labor Shed, Occupation Mix: Data Centers, 2007 Quarter 1**

Occ Code	Title	New Employer Demand	Empl (Place of Residence) <sup>1</sup>	Unempl <sup>1</sup>	Regional Avg Wage <sup>2</sup>	National Avg Wage <sup>2</sup>	Empl Extended	Unempl Extended	Potential Candidate / Opening Ratio
15-1151	Computer User Support Specialists	20	1,583	78	\$43,000	\$53,100	1,142	75	83
15-1141	Database Administrators	6	395	11	\$62,100	\$87,100	6,574	229	68
15-1142	Administrators	6	1,045	28	\$67,700	\$84,500	2,794	85	179
15-1122	Information Security Analysts	5	225	6	\$71,300	\$96,000	5,902	186	46
15-1199	Computer Occupations, All Other	4	493	19	\$77,200	\$88,900	5,855	271	128
11-3021	Computer and Information Systems Managers	2	718	24	\$118,900	\$145,700	2,479	82	371
15-1143	Computer Network Architects	2	379	4	\$80,600	\$104,200	5,823	171	192
41-3099	Sales Representatives, Services, All Other	2	2,303	89	\$50,900	\$63,100	0	0	1,196
43-1011	Administrative Support Workers	1	5,199	186	\$47,600	\$57,900	6,401	156	5,385
49-9071	Maintenance and Repair Workers, General	1	5,073	219	\$35,200	\$39,400	1,343	76	5,292
33-9032	Security Guards	1	3,232	204	\$25,100	\$29,700	945	59	3,436
	Total Annual Payroll				\$2,913,000	\$3,680,000			

Source: [JobsEQ®](#)

1. Occupation employment and unemployment are place-of-residence data--that is, referring to workers who reside in the named locality.

2. Occupation wages are as of 2016 and represent the average for all Covered Employment

Note: Figures may not sum due to rounding.

Note: Employment extended refers to regional workers with skills similar to the specified occupation and currently or previously employed in an occupation with wages no more than 10% higher than the average wage of the specified occupation.

\* <http://wjhl.com/2017/04/20/mineral-gap-to-build-65-million-data-center-in-wise-county-40-new-jobs/>

\* <http://www.datacenterdynamics.com/content-tracks/colo-cloud/dp-facilities-opens-65m-data-center-in-virginia/98188.fullarticle>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Regional Postsecondary Programs for Information Security Analysts

Title/School	Annual Awards - GO VA Region 1 Labor Shed		
	Certificates and 2yr Degrees	4yr Degrees	Postgraduate Degrees
<b>11.0103 Information Technology</b>			
American National University	0	2	0
King University	0	49	0
Surry Community College	19	0	0
Virginia Highlands Community College	0	0	0
<b>11.0701 Computer Science</b>			
Radford University	0	62	0
Roanoke College	0	2	0
The University of Virginia's College at Wise	0	6	0
<b>11.0901 Computer Systems Networking and Telecommunications</b>			
ITT Technical Institute-Johnson City	0	0	0
Surry Community College	5	0	0
<b>11.1001 Network and System Administration/Administrator</b>			
American National University	17	1	0
Skyline College-Roanoke	4	0	0
<b>11.1002 System, Networking, and LAN/WAN Management/Manager</b>			
ITT Technical Institute-Johnson City	4	0	0
ITT Technical Institute-Salem	15	0	0
<b>11.1003 Computer and Information Systems Security/Information Assurance</b>			
American National University	9	0	0
ITT Technical Institute-Johnson City	0	0	0
ITT Technical Institute-Salem	0	0	0
Skyline College-Roanoke	0	5	0
Surry Community College	1	0	0
Virginia Polytechnic Institute and State University	0	1	0
<b>Total</b>	<b>74</b>	<b>128</b>	<b>0</b>

Source: [JobsEQ®](#)

Data as of the 2014-2015 academic year

## EXISTING PLANS & INITIATIVES

### GO VA's Purpose

*Create additional higher paying jobs through incentivized collaboration primarily through out-of-state revenue, which diversifies and strengthens the economy in every region.*

### Region One Vision

*Southwest Virginia is a vibrant and robust region with a diversified and growing population and economy.*

### Region One Mission

*To invest in regional assets including the human, community, natural and structural assets to improve the local economy in the creation of the next generation jobs through transformational strategies, which bring the economy of SWVA into equilibrium with that of the Commonwealth.*

GO Virginia Region One has one simple goal. That is to:

### **Repurpose the SWVA economy to grow high wage jobs**

In accomplishing this goal, GO VA 1 focused on strategies which will transition the region's economy away from a single-industry dominated economy to a more sustainable and diversified economic base. GO VA 1 aligned the region's priorities with that of the state GO Virginia board. These priorities are mapped between the region and state in the chart below.

GO Virginia Priorities	Region One Priorities
Support Collaboration	✓ Implementation Infrastructure and Coordinating Strategies Defined
Increase Higher Paying Jobs	✓ Targeting Basic Employers with Wages above Regional Median Wage
Create, Recruit & Retain Talent	✓ Focused on Leadership Development and Industry Recognized Skills
Grow Industry Clusters	✓ Targeting Existing Industry Clusters where SWVA has a Competitive Advantage
Scale Up Businesses	✓ Supporting Existing Businesses to Develop New Products and/or New Markets
Support Entrepreneurs	✓ Enhancing Regional Eco-system with Increased Access to Capital and Mentoring Opportunities
Support Economic Development	✓ Focused on Product Development and Information/Data Capacity Critical to Industry Recruitment



## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Analysis of Existing Regional Strategic Plans

In the course of developing the Growth and Diversification Plan for GO VA 1, fourteen strategic plans were reviewed and evaluated including plans from neighboring states such as Kentucky as well as strategic plans related to regional initiatives promoting tourism and quality of life. The full list of plans considered may be found in the appendix.

It was obvious that most of the organizations had put thoughtful planning into developing their strategies and that many of the challenges, opportunities, and threats are shared throughout GO VA 1 and the broader region. These are captured in the chart below.

Regional Topics		Commonalities
Demographics	Strengths:	Small business startups; higher education opportunities; low tax rate; strong work ethic among population; significant healthcare/health services cluster
	Challenges:	Aging population; loss of millennials; declining health metrics; drug abuse; high percentage of population with a disability; educational attainment not realized; low income and high poverty levels; lack of diverse population
	Opportunities:	Leverage and grow regional assets to retain and attract millennial population; promote health and wellness programs through citizen involvement; strong regional collaboration to address and overcome demographic challenges
Education/Workforce	Strengths:	Sizable middle-skill STEM, trainable workforce with ability to transition from coal to manufacturing filling workforce gaps; high quality of training resources; strong higher education opportunities and support; existing technical training capacity; veteran workforce (existing & retired military); creative and talented millennials population; workforce receptive to new skills and job opportunities; workforce development infrastructure; strong regional work ethic
	Challenges:	Aging workforce; loss of millennials; losing workforce to disabilities; unemployed and underemployed workforce; lack of training programs specific for target industry sectors and markets; few employment opportunities with competitive wages; lack of apprenticeship opportunities; workforce isn't always ready- skills and mentality; lack of employment opportunities of newly trained workforce; substance abuse; workforce resigned to "way things are" status quo mentality; existing workforce is stifling the younger workforce

## GO VA Region One – Growth & Diversification Plan (August, 2017)

	<b>Opportunities:</b>	Coordinate and focus workforce programs to align with industry and economic development targets; market higher education and specialty schools on a regional, state, and national level; match job training to skilled workers; identify workforce talents of the existing workforce and provide opportunities for training advancement to aid in retention of employees; develop industry clusters that can cross county and regulatory boundaries to provide support for specific industries such as equipment manufacturing, electrical equipment, and IT and cyber (engage economic development professionals); leverage the Virginia Economic Development Partnership (VEDP) strategic plan by targeting industry clusters; develop partnerships to work with industrial recruitment and coordinate with educational opportunities creating a hand-in-hand pipeline for job recruitment; build credentials and certifications that are transferable between industries and geographic areas; focus on youth in education and establish a pathway from kindergarten to career for workforce development; focus on opportunities to educate the parents of children – combine school efforts with family support opportunities; develop funding sources for K-12 grades in schools to hire a dedicated technology teacher (computer science); promote IT job openings that are available today and emphasize the available salaries; dispel the mindset that to be successful in the workforce requires a four year college degree
<b>Leadership</b>	<b>Strengths:</b>	Strong SWVA legislative delegation; committed support from regional planning district commissions, community economic boards and developers; staunch support from leadership in higher education, and K-12, as well as local government and civic organizations; talented up and coming generation of potential local, regional, state and national leaders
	<b>Challenges:</b>	Lack of understanding/experience among elected officials; regional leadership can be a challenge; citizen frustration/distrust of government – limited resources for communications between the two; need for trained leaders pool; young/future leaders leaving area and not returning; resistance to change among leaders; lack of “depth on bench”- same people doing all the work; need for “non-polarizing” language to discuss issues
	<b>Opportunities:</b>	Strengthen existing leaders and foster opportunities for leaders to create and communicate compelling vision for the future of the region with community members; cultivate leadership and mentoring opportunities with community members and local business leaders and students in elementary school through college, and engage them in the community; focus on opportunities to develop student leaders; develop training and resources such as regional leadership academy and celebrate success

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Infrastructure</b>	<b>Strengths:</b>	Developed industrial parks; low energy costs compared to national average; network of small general aviation airports; interstate system; rail; strong broadband with regional collaboration; telecommunications; connecting SWVA and NOVA; educational institutions; strong small business development centers; enterprise zones; 3D printing; Appalachian Electric Power (AEP) \$100M investment in eliminating operational blips
	<b>Challenges:</b>	Abrupt decline in energy sector; limited funding and resources for infrastructure; aging water and sewer systems; limited natural gas infrastructure; broadband last mile and cellular coverage; need for site readiness and shell buildings; maintenance of roads and bridges; limited rail (passenger and freight); topography and geography of regional areas create disparity of expense in infrastructure; limited public transportation; distance from major interstate highways for some regional areas; transportation – freight return trips – empty
	<b>Opportunities:</b>	Leverage broadband infrastructure to promote the ability to work remotely, and introduce youth to technology operations early; grow information technology (IT) hubs to attract and support millennials; develop energy research centers; include renewable energy opportunities to attract large companies; promote and support downtown revitalization; regional coordination and collaboration for project funding to create utility authorities seeking grants and bonds; seek state and federal funding for broadband expansion for last mile and cellular; creative housing opportunities such as cluster housing
<b>Entrepreneurship &amp; Business Environment</b>	<b>Strengths:</b>	Trend in regional small business growth - from 2010 to 2015; jobs created by small companies outpaced the Commonwealth as well as nationally; jobs created by young companies (5 years old or less) increased from 2010-2015; minimal cost of doing business (labor); strong and growing retail; local business success stories; availability of support services and supplier networks; availability of good and trainable workforce
	<b>Challenges:</b>	Lack of funding, grants, capital incubator space for entrepreneurs; limited mentoring programs to connect successful business leaders and entrepreneurs wanting to enter start up space; limited access to high speed internet connections is a challenge, difficult to obtain information, understand requirements and regulations; access to supplies and markets is inadequate resulting in lost sales opportunities; community environment supporting an entrepreneurial culture is a challenge; regional economic climate- limited fixed incomes- competitive pricing drives consumers to big box retailers; shop local programs are a challenge

## GO VA Region One – Growth & Diversification Plan (August, 2017)

	<b>Opportunities:</b>	Cultivate entrepreneurs and support and diversify existing businesses; identify what is currently being done and who is doing it; develop a prepared workforce; assess market trends and identify where existing businesses could expand and new businesses emerge, taking advantage of the technical skillset of unemployed or underemployed miners; create an entrepreneur ecosystem – create an environment with resources for new entrepreneurs and emerging businesses, including access to capital; explore new ways of growing things and niche markets like hydroponics, maple syrup, heritage breeds, and tilapia; apprenticeship and mentor opportunities for startups; downtown revitalization; global marketing branding initiatives present unified regional message; funding opportunities for startups- revolving loan programs, micro lending, grants, etc.; research thriving rural communities- successful and innovative programs/startups; support cultural heritage and tourism; regional entrepreneurial culture of communities to support/encourage startups and small business
Quality of Life	<b>Strengths:</b>	Strong cultural heritage; SWVA home to eight major natural recreation anchors; quality of life and quality of place are attracting new residents to communities, thus creating new business which further enhance the quality of life – “Double Quality of Life Business”; rapidly growing health education landscape; scenic beauty of region; low cost of living; low crime rate; moderate climate conditions; the “Appalachian” brand; resilient population with strong work ethic; open to outside views and opportunities
	<b>Challenges:</b>	Regional branding- unified message; perceived Appalachia culture (negative stereotypes of region, region is “second rate”); Tourism seen to some as not an economic development priority; lack of quality child care; visual impression of houses and schools in the region; lack of entertainment to entice young entrepreneurs
	<b>Opportunities:</b>	Promote, grow and market a high quality of life in SWVA; tell and share the story of SWVA;s culture in a positive way; promote regional outdoor recreation assets; develop an inventory of “things to do” that would be attractive to young professionals; grow health and wellness as economic drivers (market high quality of life in SWVA, tell and share the story of SWVA’s culture in a positive way, promote the strength of SWVA culture to people and employers); create an identity for the region as a “culture of wellness”; foster agricultural and natural resources growth, as well as healthcare development; create a digital ambassador program that creates a positive regional image; educate community members in general of the region’s assets such as outdoor recreation, broadband, water, energy, land and labor; leverage our location; address internal self-perception problem-increase pride within region

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Regional Collaboration</b>	<b>Strengths:</b>	Collaborative regional planning and coordinated economic and workforce development efforts "Planning Blueprints"; strong technology broadband-4G regional collaboration; existing technical capital; integrated network of education-K-12 >Community College>Universities; chambers provide opportunity for regional networking; 10 county region of Southwest Virginia (SWVA) pilot project of downtown development; cooperation of businesses in the region
	<b>Challenges:</b>	Regional branding - lack of unified message; state funding does not reward collaboration; strong competition between county economic development organizations; absence of regional entrepreneurship center; lack of coordinated advertising effort to attract people; no collaboration with land owners to encourage investment in agriculture commodities that would produce the greatest yield
	<b>Opportunities:</b>	Foster regional collaboration for workforce and education for all ages and stages, including workforce rehabilitation; develop a business-to business network to identify input or support needs that can be sourced locally to build the regional economy; develop opportunities for smaller companies to partner with larger companies to meet and address the needs of one another; connect farmers markets to grocers, school systems, hotels, hospitals, and food banks (gleaning "seconds" or produce that is still viable but cannot be sold); convene stakeholders regionally to develop a regional workforce strategy beyond the local level to reduce silos and increase regional collaboration; lead state discussion on collaborating across state lines and within labor shed; emphasize or expand trade and soft skills (such as communication and collaboration) in education; align local and regional economic development strategies; regional collaboration for Federal Promise Zone designation; increase entrepreneurship opportunities and promote collaboration; emphasize or expand trade and soft skills (such as communication and collaboration) in education

### ***Significant similarities existed among the three planning districts as it relates to industry targets.***

Advanced manufacturing, information technology, federal contracting, food processing were among the common targets, while each district had something unique in their targeted clusters as well. The unique targets included distribution and logistics, emerging industries such as unmanned autonomous systems as well as energy and agriculture. The chart below exhibits the overlap of the primary target industries of regional EDOs (Economic Development Offices), Planning District Commissions (PDCs) and Workforce Development Boards (WDBs).

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Target Industries	Planning Districts 1 & 2				Planning District 3		
	LENOWISCO Planning District	Cumberland Plateau Planning District	VCEDA	Workforce Development Area One	Planning Planning District	VIAA	Workforce Development Area Two
<b>Tourism</b>		X		X	X		
<b>Healthcare</b>				X			X
<b>Information Technology</b>							
Data Centers			X			X	
Call Centers		X	X				
Software Engineering/ Development			X	X			X
Cyber Security			X				
<b>Agriculture</b>							
Aquaculture		X	X				
Industrial Hemp	X				X		
<b>Manufacturing</b>							
Food and Beverage			X	X	X	X	X
Plastics					X	X	
Advanced Material					X	X	
Wood Products		X	X		X	X	
Fabricated Materials			X			X	X
Machinery			X				
Transportation Equipment			X			X	X
<b>Distribution and Logistics</b>					X	X	
<b>Energy</b>							
Clean Coal		X	X				
<b>Entrepreneurs</b>	X	X		X			
<b>Unmanned Systems</b>			X				
<b>Existing Businesses</b>	X						
<b>Federal Contracting</b>			X				

VCEDA - Virginia Coalfield Economic Development Authority

VIAA - Virginia Industrial Advancement Alliance

The commonalities, in addition to the quantitative analysis of business trends, labor market data and skills gap analysis helped inform the targeted industries of GO VA Region One. Although one of the primary initiatives of all three planning districts was the development and promotion of outdoor, cultural and tourism assets, the industrial targets above are considered basic economic drivers and informed the development of the GO VA plan. The development of the tourism assets undoubtedly add to the quality of life and amenities enjoyed by both regional visitors and citizens, it was not chosen as a primary targeted industry due to the relatively low wages compared to the region's average.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

In examining the industry trend analysis and also participating in conversations with business, community and government leaders, it is clear that the most significant difference from the westernmost end of Region One to the eastern most area is the impact the decline in the coal and energy sector has had on demographics, employment levels and quality of life. In addition to avoiding the negative economic impacts of the natural resource industry decline, the presence of Interstates 81 and 77 also offers unique advantages for PDC 3, the eastern part of the region, where logistics and distribution, warehousing and storage are primary targets.

All regions indicated challenges of declining or stagnant population numbers, an aging workforce and filling existing job openings due in part to lack of knowledge across the region of what jobs are available. Existing educational programs are challenged in recruiting adequate numbers of participants even for positions in demand occupations such as those in the skilled trades. This is due in part to a lack of awareness of the job occupations available in the region, the basic lack of understanding of manufacturing in today's world and the limited communication between educational partners and employers with vacancies.

Ultimately, the three planning districts of Region One had many more things in common than unique challenges.

### Existing Regional Initiatives

As part of designing the Region One Growth and Diversification Plan, an inventory of existing regional initiatives and associated funding was completed. **Dozens of projects** focusing on downtown revitalization, place-based/asset-based initiatives (trails, rivers and outdoor assets), entrepreneurship and workforce development (advanced manufacturing, lineman, and cybersecurity training) **are underway** within the three planning districts. **Over forty funded initiatives are at different stages of progress.** The gap as identified by most stakeholders who participated in the development of this plan is the lack of coordination – the ability to connect the dots and realize the greatest return on investment of not only funds but the limited resources of time and labor for those involved in implementation. These initiatives are led by passionate individuals/organizations who are oftentimes working in silos.

***GO VA has a key role to play in encouraging regional collaboration across multiple sectors promoting communication, leverage limited resources and targeting resources to existing gaps or to enhance existing efforts which are making a significant impact.***

### Education and Workforce

In addition, a key component in considering the existing initiatives in the region are the institutions of higher education located within its geography and the labor shed, providing a strong foundation in the educational infrastructure of Southwest Virginia. Fourteen, four-year colleges and universities and six community colleges are operating in the Region One labor shed, contributing much needed human and educational capital to efforts to improve economic conditions in the area.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Four-year Colleges and Universities in the Labor Shed (\* denotes those located within Region One)

1. The University of Virginia's College at Wise \*
2. Bluefield College \*
3. Appalachian School of Law\*
4. Appalachian College of Pharmacy\*
5. Southwest Higher Ed Center \*
6. Emory & Henry College\*
7. King College
8. East Tennessee State University
9. Pikeville College
10. Lincoln Memorial College
11. Radford University
12. Virginia Polytechnic Institute
13. Concord University
14. Alice Lloyd College

### Community Colleges within the Labor Shed (\* denotes those located within Region One)

1. Mountain Empire Community College \*
2. Southwest Virginia Community College \*
3. Virginia Highlands Community College \*
4. Wytheville Community College \*
5. Northeast State Technical Community College
6. New River Community College

Over the past decade, many of the colleges have collaborated on workforce development initiatives designed to build a technology and manufacturing workforce. Presently, several of the colleges are collaborating on federally grant-funded initiatives supporting the development industry recognized credentials for the manufacturing and information technology sectors. The Commonwealth's first unmanned aerial vehicle (UAV) curricula was developed in GO VA Region 1 by Mountain Empire Community College and industries supporting this emerging technology are engaged in the development of the content and committed to exploring ways of building that industry in SWVA. Conversations with the workforce professionals involved with these new programs reveal the challenges faced with recruitment of participants in programs and the concerns of continued funding to operate programs after the grant periods end.

### Entrepreneurship and Innovation

Opportunity SWVA, a network of entrepreneurship and business support organizations operating in SWVA since 2012 and charged with the implementation of the *Blueprint for Entrepreneurial Growth and Economic Prosperity in Southwest Virginia* is piloting the way for the region to align resources, highlighting opportunities for entrepreneurs, supporting their efforts, and expanding the spirit they bring to communities within the region. Through collaborative partnerships, the initiative is working to rally existing and emerging economic and community development efforts to create thriving entrepreneurial communities that will accelerate progress for both new and established ventures. This thirty member network covers the GO VA Region One footprint but expands into planning district four as well and has been responsible for the significant growth in entrepreneurship challenge competitions, educational programs and training for emerging entrepreneurs and connecting them to regional strategies. Opportunity SWVA has helped spark a movement of downtown revitalizations throughout the GO VA Region 1 through the Rally SWVA initiatives in which nearly 20 communities have engaged in some form of downtown revitalization, community preparedness or visioning efforts. The ecosystem supporting entrepreneurs in SWVA is healthy but a few gaps remain. Although high growth companies have access to capital via various angel and venture capital firms in other parts of the Commonwealth, no angel fund exists which primarily serves GO VA Region 1. This presents a resource gap for GO VA Region 1.

### Downtown Revitalization

The numerous downtown and main street revitalization efforts underway are creating business friendly environments that connect to and leverage regional strategies (e.g. trails, music venues, blue water ways, etc.). As GO VA Region 1 strives to recruit millennials and retain young adults, building communities which are attractive to this demographic require different approaches than the communities have undertaken in the past. The largest sector of respondents to the GO VA Region One community survey were residents who have lived in the region for over 10 years. They did not express challenges in housing, however, more work needs to be done in assessing the opportunities which exist to connect creative, adaptive re-use of facilities for mix-uses. Clustering activities and amenities in community downtown spaces are attractive to both millennials and the aging baby boomer population. Creating a “sense of place” with dense environment within the SWVA communities will help strengthen the draw for populations seeking to live, work, play and learn, all within walking distance.

### Infrastructure

Working with economic development and planning district professionals in the development of this plan, it was evident that plans were in place to increase the “product,” the term economic development professionals refer to industrial and technology sites and buildings. Existing sites are in place but have different levels of infrastructure, capacity and opportunities. Two recent feasibility studies have been completed which identified potential sights and at least two new industrial/technology sites are on the radar screen for development within the region. Nine industrial sites exist in planning districts 1, 2 and 3. Assessing and characterizing these sites for their capabilities and level of preparedness is an important next step for Region One.

# GO VA Region One – Growth & Diversification Plan (August, 2017)

## LEGEND



Colleges and Universities



Community College



Other Education Asset



Workforce Center



Incubators/Accelerators



Centers of Excellence



Technical and Industrial Parks



U.S. Interstate



U.S. Highway



Railroad



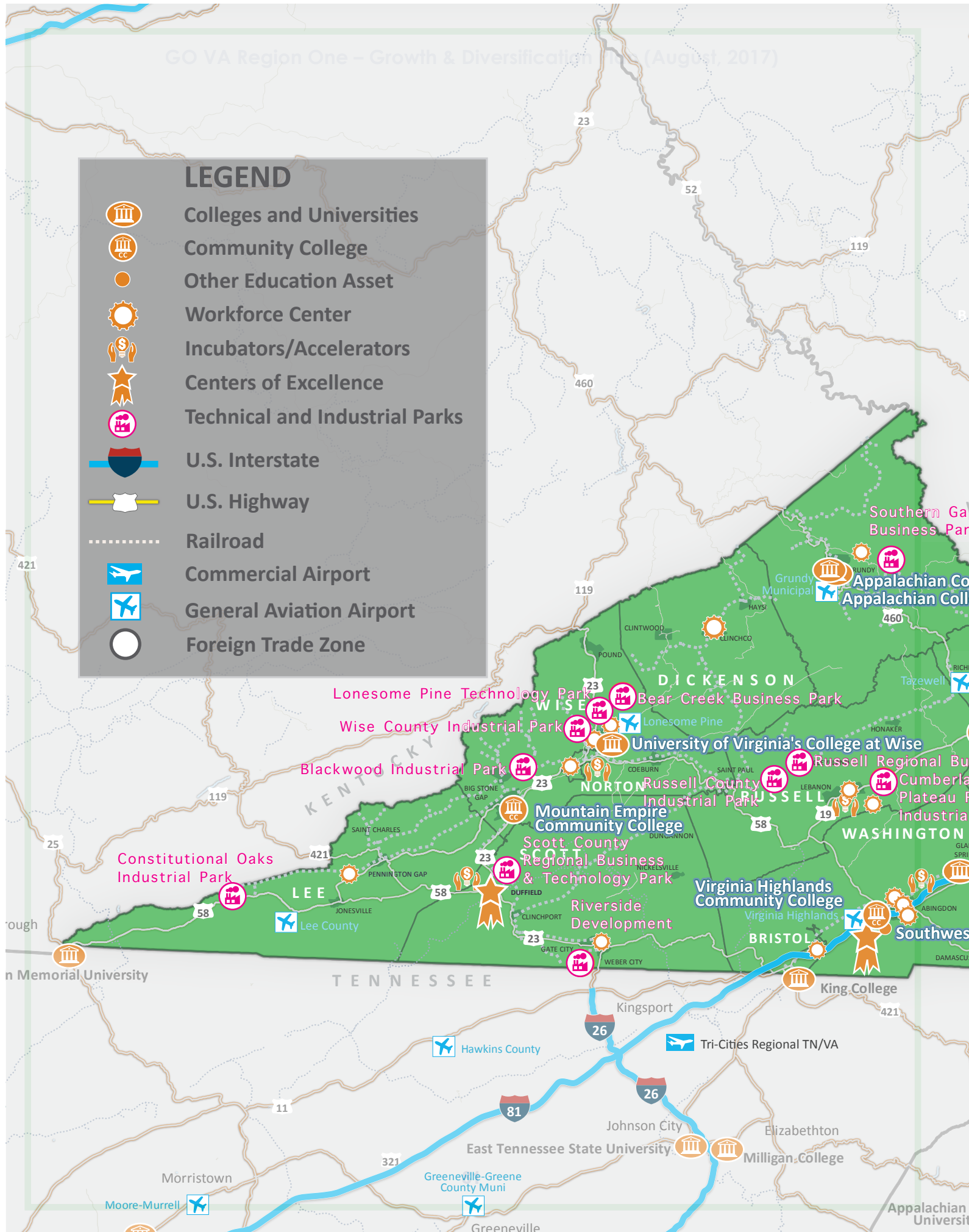
Commercial Airport

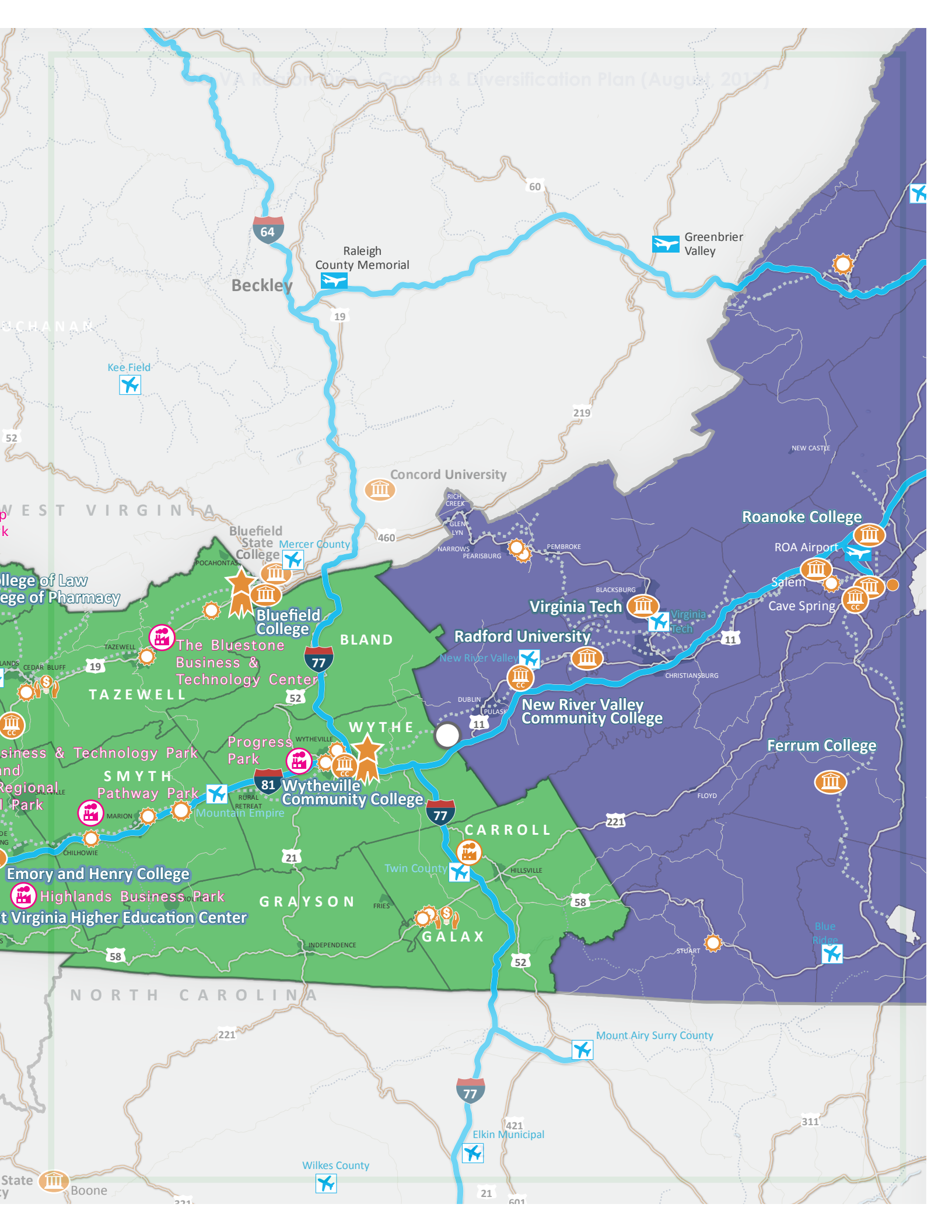


General Aviation Airport



Foreign Trade Zone





Beckley

Raleigh  
County Memorial

Greenbrier  
Valley

Concord University

Roanoke College

Bluefield  
State College

Bluefield  
College

Virginia Tech

Radford University

New River Valley  
Community College

Ferrum College

The Bluestone  
Business &  
Technology Center

WYTHE

Progress  
Park

Wytheville  
Community College

CARROLL

Emory and Henry College

Highlands Business Park  
West Virginia Higher Education Center

GRAYSON

GALAX

NORTH CAROLINA

Mount Airy Surry County

Elkin Municipal

Wilkes County

State  
Boone



## Community & Stakeholder Engagement

### Community Survey

One of the earliest steps in the development of the Growth and Diversification Plan was an online survey to gauge individual outlooks and ideas from the citizenry of Region One. The survey was promoted online and via social networks as well as through stakeholder groups including membership organizations such as chambers of commerce, the Southwest Virginia Technology Council and the Alliance for Manufacturing. This approach was in an effort to engage business owners and employers. **Nearly 500 respondents** from all over SWVA provided input (see the Appendix for a map of responding zip codes as well as the overall survey results). In addition, **over 200 comments** to various questions were offered throughout the survey, providing some valuable feedback.

Over 88 percent of the respondents were long-term (10+ years) residents of the region, but signaling the urgency of the Growth and Diversification Plan and the GO VA effort, as a whole, **nearly ¼ of the respondents were actively considering relocating out of the area**. The primary reasons noted for considering relocation were (a) better job opportunity; and (b) quality of life, both of which are frequent indicators of the economic vitality of a region.

When asked to rate the current economic conditions of the region, nearly 83% of the respondents rated “employment growth” as either poor or very poor. Furthermore, **over 92% of respondents rated the “opportunity for high wage jobs” as poor or very poor**.

Survey participants viewed **“population decline” and “health concerns” as the key challenges** the community must overcome to advance economically. There was widespread opinion on the most important tools and resources for economic growth in SWVA, but “federal, state, or private funding for infrastructure”; “working as a region across county lines”; and **“targeted workforce training”** were the top three choices, with all three seeming to harmonize with the objectives of the GO VA initiative.

When queried on what type of industries should be pursued in the region to add higher paying jobs, “information technology (IT)” was the choice of over 48% with “solar energy” “health care” and “educational institutions” also being selected by a sizable number of respondents.

The regional survey was an excellent foundation to guide other elements of the Plan as it also heralded the importance of what the GO VA effort is all about and, in fact, echoed some of the guiding strategies that ultimately evolved in this Growth and Diversification Plan.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Regional Conversations

As related earlier, three regional conversations – in Duffield, Lebanon, and Marion – were held over a two day span in early August, in an effort to canvass all three planning districts for individual feedback on the Growth and Diversification Plan.

Christine Gyovai, a facilitator with Dialogue + Design Associates, guided each meeting and its progress. In addition, Region One council members were present at each meeting to share the background and purpose of GO VA along with the process of developing the Growth and Diversification Plan.

Attendees included business, community, education and government leaders. The participants were provided the results of the regional survey and preliminary findings of the quantitative economic analysis by Chmura, the participants divided into small groups to share and prioritize ideas around some key guiding questions:

- What are SWVA's top strengths and opportunities for economic growth as a region?
- How can these opportunities be realized or created in SWVA?
- Who needs to be involved?
- How can these ideas be made a reality?

During the second and third meetings, the highlights of previous meetings were also shared before the small group discussions, to encourage the groups to both build upon the existing top ideas and to identify new ideas as well.

After the small group discussions, the group as a whole reconvened, shared their ideas, and prioritized what they envisioned as the top concepts.

While there was significant overlap between the ideas of each group and more detail on their thoughts and ideas can be found both in the Appendix of this plan and online at this link,\* the top prioritized goals were:

- 1. Strengthen existing leadership and foster next generation leadership.**
- 2. Cultivate entrepreneurs, and support and diversify existing businesses.**
- 3. Develop regional collaboration for workforce and education (including K-12) and expand, market and grow regional educational resources.**
- 4. Leverage broadband infrastructure to promote the ability to work remotely and grow information technology (IT) infrastructure and technology hubs.**
- 5. Create a new identity for the region as a “culture of wellness” and promote the region’s high quality of life, assets, and amenities through marketing and telling positive stories of the region.**
- 6. Coordinate and focus workforce programs to align with industry and economic development targets.**

At the conclusion of each meeting, the participants were encouraged to stay engaged in the GO VA process, by passing along ideas, sharing contact information to remain aware of GO VA developments and were provided the dates of future regional meetings.

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\* <https://www.uvawise.edu/uva-wise/administration-services/office-economic-development/go-virginia-region-one-council>

## SWOT Analysis of Target Industries

As GO VA 1 seeks to diversify the region's economy and move away from a one-industry dominated economy to find a balance of industry sectors, the four industries which presented themselves as the most likely to yield the higher wages and build upon strengths of the region are listed below.

- Advanced Manufacturing
- Agriculture and Food and Beverage Manufacturing
- Information and Emerging Technologies
- Energy & Minerals

The following charts are a compilation of the information gathered through both the quantitative study and qualitative information received through stakeholder surveys, focus groups and conversations. These tables will help jumpstart working groups as they move forward with developing project ideas and form collaborative partnerships which will ultimately generate proposals for the GO VA 1 council to consider for funding. While some of these industries serve as aspirational targets, others present excellent opportunities to build upon significant strengths and competitive advantages already present in the region. Targeting these four areas offers opportunities to balance GO VA 1's resources and attention on both short-term opportunities and long-term capacity building

### Advanced Manufacturing – A sector strategy

	Strengths	Challenges	Opportunities	Threats
<b>Economic Factors</b>	<ul style="list-style-type: none"> <li>· GDP supporting incoming wealth to the region</li> <li>· Wages can attract employers seeking lower cost of goods produced</li> </ul>	<ul style="list-style-type: none"> <li>· Manufacturing sector has been in decline for the past two decades but seems to be leveling</li> </ul>	<ul style="list-style-type: none"> <li>· Go VA investments in projects that lift wages within target clusters</li> </ul>	<ul style="list-style-type: none"> <li>· Continued loss of millennials which affects quality of life and workforce</li> <li>· Available labor may be tight in the future if this trend continues</li> </ul>



## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Workforce</b>	<ul style="list-style-type: none"> <li>• LQ: 1.48 shows a sufficient supply of workers to attract new firms</li> <li>• Unemployed miners have transferrable skills into manufacturing</li> <li>• Manufacturing culture is established and competitive but has some deficiencies as well</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of industry recognized credentials and certifications; need more engagement from employers</li> <li>• Lack of understanding of occupations available</li> <li>• Lack of alignment in educational programs with needs of industry</li> </ul>	<ul style="list-style-type: none"> <li>• Organizational design for Go VA working groups:                         <ul style="list-style-type: none"> <li>◦ Human Capital Development</li> <li>◦ Infrastructure</li> <li>◦ Innovation</li> </ul> </li> <li>• Working groups can coordinate across existing initiatives to focus on the following priorities:                         <ol style="list-style-type: none"> <li>1. Align existing skillsets of unemployed miners to advanced manufacturing skillsets and support credentialing</li> <li>2. Align educational programs with needs of industry; create industry clusters: nest career pathways inside sector strategies</li> <li>3. Include advanced manufacturing curricula (design, coding, robotics in K12)</li> <li>4. Find creative ways to strengthen the pipeline to programs</li> <li>5. Create apprenticeship and internship programs</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• Low enrollment rates may not help close skills gaps</li> <li>• Mindset of the unemployed working 2-3 jobs to bring in income is hindering enrollment</li> <li>• The reality of time management for upskilling vs. short-term needs for income</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• 9 industrial parks</li> <li>• 2 – 3 new ones in the planning stages</li> </ul>	<ul style="list-style-type: none"> <li>• Some parks may not have all of the necessary infrastructure needed to support target industries</li> <li>• Lack of certifications for the majority of the industrial parks</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple sites are available and some are potentially product ready</li> </ul>	<ul style="list-style-type: none"> <li>• The lack of access to asset data threatens our ability to tell our story fully</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Innovation</b>	<ul style="list-style-type: none"> <li>Some R&amp;D work is underway with existing manufacturers</li> <li>Access to business supportive resources such as Genedge and Manufacturing Technology Center</li> </ul>	<ul style="list-style-type: none"> <li>Lack of critical mass of R&amp;D</li> <li>Few new, emerging businesses are recruited to the area because they are perceived as too risky with such scarce resources</li> <li>The reach of Genedge and MTC is too restricted</li> </ul>	<ul style="list-style-type: none"> <li>Select the right projects to grow tech transfer into targeted clusters</li> <li>Working groups can connect to the specifics of the companies currently engaged in R&amp;D efforts</li> <li>Proximity to VA Tech, ETSU, and tele-initiatives from UVA to UVa-Wise</li> <li>Change VA policies to broaden the scope of Genedge and MTC</li> <li>Working groups can raise awareness of expanded scope and missions</li> </ul>	<ul style="list-style-type: none"> <li>Few new, emerging businesses are recruited to the area as they are seen as too risky with such scarce resources</li> </ul>
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### Food and Beverage Manufacturing: A sector strategy-

	<b>Strengths</b>	<b>Challenges</b>	<b>Opportunities</b>	<b>Threats</b>
<b>Economic Factors</b>	<ul style="list-style-type: none"> <li>GDP reflects baseline exports supporting a growing basic industry</li> <li>33% of the cattle sold in VA is from the region and 36% of the wealth generated</li> <li>Wages: \$34,454 AAR is an attractive (low) wage for food processing companies looking to boost their profits</li> </ul>	<ul style="list-style-type: none"> <li>Tends to be lower wage occupations</li> <li>Industry is projected to decline over time due to automation, innovation, and productivity gains</li> </ul>	<ul style="list-style-type: none"> <li>GO VA investment may lift wages within target agriculture cluster</li> <li>Vertically integrate industry cluster connecting agribusiness' supply chain</li> </ul>	<ul style="list-style-type: none"> <li>Organic livestock prices drop nationally</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Workforce</b>	<ul style="list-style-type: none"> <li>• LQ: 0.31 ties to agriculture in the region with an LQ of 2.33</li> <li>• Ample supply of labor with only a few exceptions</li> <li>• Some shared skillsets exist between agribusiness and manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of industry recognized credentials and certifications and understanding of the industry needs</li> <li>• Lack of understanding of occupations available in agribusiness</li> <li>• Lack of alignment in educational programs with needs of industry</li> <li>• Aging farmers and lack of next generation growers</li> </ul>	<ul style="list-style-type: none"> <li>• Work with existing agribusinesses to seek organic certifications</li> <li>• Align educational programs with needs of industry</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of knowledge of educational programs may not close skills gaps</li> <li>• Current image of "farming" and lack of knowledge of occupation prospects may not attract the next generation of growers therefore limiting growth in industry</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• Existing Farms (9,750)</li> <li>• Farm acreage in region increased 6.4% compared to 2.4% in VA indicating an upward trend in the region</li> <li>• Presence of heritage breeds and legacy farms contribute to a regional identity in this sector</li> <li>• Region has abundant water and good climate for certain crops</li> </ul>	<ul style="list-style-type: none"> <li>• Shortage of grazing land for grass fed cattle</li> <li>• Gap in food processing facilities in region – specifically slaughter and processing firms</li> <li>• Gaps in organically certified farms</li> <li>• Not all industrial sites have access to rail – an important component for food/beverage processing</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple sites are project ready but could benefit from being certified for food/beverage manufacturing</li> <li>• There is capacity for more medium-sized food/beverage processing companies and suppliers could be recruited to the region</li> </ul>	<ul style="list-style-type: none"> <li>• The labor-intensive process for obtaining certification may hinder a locality's ability to work through the process</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Innovation</b>	<ul style="list-style-type: none"> <li>Some small-scale agriculture R&amp;D work is underway (maple syrup, and industrial hemp) which may lead to new products and markets</li> <li>Appalachian Sustainable Development has a well-defined network of farmers/ growers and ability to deliver training/ education</li> <li>Rooted in Appalachia is an 18-month produce initiative that is catching on in the region</li> </ul>	<ul style="list-style-type: none"> <li>Few existing farms are exploring R&amp;D or innovation to new product or systems; Few agribusinesses have continuous improvement mindsets</li> </ul>	<ul style="list-style-type: none"> <li>The region needs more information on the “as is” state of R&amp;D spending in the region (current state)</li> <li>Grocers and growers in vertically integrated business may have a win/win value proposition</li> </ul>	<ul style="list-style-type: none"> <li>Negative trends for new farmer entries into the region</li> <li>Lack of recruiting people into educational programs</li> </ul>
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### Energy and Minerals – A sector strategy

	<b>Strengths</b>	<b>Challenges</b>	<b>Opportunities</b>	<b>Threats</b>
<b>Economic Factors</b>	<ul style="list-style-type: none"> <li>GDP 7.9%; High export industries</li> <li>5% Labor Shed; .3% VA</li> <li>Abundant Workforce</li> <li>Among the highest wages in the region (\$71,666 AAR)</li> <li>Pilot Wind/Solar/ hydroelectric “pump storage” projects being explored</li> <li>Highest quality metallurgical coal in the world exists in Region One</li> <li>Access to VA Tech’s world class mining engineering program</li> </ul>	<ul style="list-style-type: none"> <li>Continued expected decline in coal and natural gas markets</li> <li>The decline affects suppliers, small community businesses, schools, local governments, etc.</li> <li>Lack of profitable business model for much of solar, wind and alternate sources of energy</li> <li>Public sentiment against fossil fuels (coal and gas)</li> </ul>	<ul style="list-style-type: none"> <li>Policies for possible revenue-sharing authorities across multiple jurisdictions can benefit from a “win” (e.g. pump storage, solar, etc.)</li> <li>Continuing global demand for metallurgical coal for steel industry</li> <li>Could the region pioneer rare earth metals production from coal processing</li> </ul>	<ul style="list-style-type: none"> <li>Commercial power providers withdraw support from alternative energy projects</li> <li>Continued declines in fossil fuels</li> <li>Global competition for met coal</li> <li>Economics of new technology</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Workforce</b>	<ul style="list-style-type: none"> <li>• LQ: 3.20 (Mining - highest concentration of any skillset in the region which equals a competitive advantage)</li> <li>• Highest concentration of expertise fall in energy section in GOVAR1</li> <li>• Existing skillsets are transferrable to various manufacturing operations</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of industry recognized credentials and certifications and understanding of the industry needs</li> <li>• Lack of understanding of occupations available</li> <li>• Lack of alignment in educational programs with needs of industry especially alternative energy</li> <li>• Aging workforce; workforce outwardly migrating or considering relocation</li> <li>• Mindset</li> <li>• Historical high wages within coal industry</li> </ul>	<ul style="list-style-type: none"> <li>• Find creative ways to boost enrollment in manufacturing or other training programs leveraging existing skillsets from training and experienced miners</li> <li>• Leverage industry expertise in creative ways such as establishing a test mine with resident experts to test new systems/ equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Population decline makes it challenging to recruit the next generation or workers in alternative energy</li> <li>• Lack of available jobs threaten the success of any new workforce program success in recruitment</li> <li>• Time requirements for certifying experienced technical workers</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• Redundant and robust electrical grid</li> <li>• Existing unused mines and mineral resources</li> <li>• Regulatory agencies such as DMME are supportive of alternative energy and new uses of reclaimed and abandoned mine land</li> <li>• Abundant reclaimed land for development</li> </ul>	<ul style="list-style-type: none"> <li>• Decline in railroad usage may threaten the continued upkeep and existence of existing railways for CSX and NS</li> <li>• Access to power grid from suitable alternative energy sites (reclaimed land)</li> </ul>	<ul style="list-style-type: none"> <li>• Reuse of available mine land for solar farms or higher altitude areas for wind farms</li> <li>• Continuing production of coal provides opportunity for rare earth metal recovery</li> </ul>	<ul style="list-style-type: none"> <li>• Continued or lack of public support for alternative energy projects (e.g. wind, solar, pump storage, etc.)</li> <li>• Advancement of battery or storage capabilities</li> <li>• Sentiment against "old coal"</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Innovation</b>	<ul style="list-style-type: none"> <li>Current research being conducted on coal to carbon products</li> <li>Current research underway on retrieving rare earth metals</li> <li>Potential of carbon based products from wood products (pellets)</li> </ul>	<ul style="list-style-type: none"> <li>Lack of critical mass of R&amp;D and advanced research in these fields of study</li> <li>Lack of funds in SWVA to recruit early-stage, emerging technology companies</li> <li>Time required to develop commercial projects and incentive investments</li> </ul>	<ul style="list-style-type: none"> <li>Leverage and explore new technology of carbon based products including economics</li> <li>Leverage research results on retrieving rare earth metals</li> </ul>	<ul style="list-style-type: none"> <li>Timeframe for progress on research for both coal to carbon and rare earth minerals may be significant</li> </ul>
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### Information Technology – Information and Emerging Technologies

	<b>Strengths</b>	<b>Challenges</b>	<b>Opportunities</b>	<b>Threats</b>
<b>Economic Factors</b>	<ul style="list-style-type: none"> <li>Export service industry</li> <li>Among the highest wages in the region but lower than the state and nation</li> <li>Growing sector across all industries</li> </ul>	<ul style="list-style-type: none"> <li>Only a few IT firms exist in the region; hard to justify a sector strategy within the larger professional business services cluster when the sector has only two large firms</li> </ul>	<ul style="list-style-type: none"> <li>Research supports some millennials and creative workers prefer a non-urban place to live and work</li> </ul>	<ul style="list-style-type: none"> <li>Perceptions remain about the region's lack of assets for creative workers</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Workforce</b>	<ul style="list-style-type: none"> <li>Emerging cluster with CGI, NGC, and DP Facilities South</li> <li>Data support adequate labor availability</li> <li>CGI and NGC success stories; 700+ employees between the two companies over 10 years in the region</li> <li>Skills are transferrable to various industries</li> <li>Educational system is strong and focused on building IT, cyber and UAV skills</li> <li>Firms employing IT professionals experience lower attrition in the region than urban centers</li> </ul>	<ul style="list-style-type: none"> <li>Lack of industry recognized credentials and certifications and understanding of the industry needs limits ability to attract participants into programs</li> <li>Lack of understanding of occupations available limits enrollment in programs</li> <li>Lack of alignment in educational programs with needs of industry especially new/emerging technologies; need more engagement from employers</li> <li>STEM Focus: skillset requires critical thinking skills often developed in Math and Science courses</li> <li>Unused capacity/ low enrollment in technology programs</li> </ul>	<ul style="list-style-type: none"> <li>Growing interest in STEM</li> <li>A data-driven approach is getting traction with all economic development efforts</li> <li>Institutions of education and training are moving toward more internships</li> </ul>	<ul style="list-style-type: none"> <li>Population decline makes it challenging to recruit the next generation of workers (replacements)</li> <li>Math skills won't have an opportunity to mix/blend with business acumen</li> <li>High school graduates are discouraged about their access to higher education</li> <li>Continued funding for programs recently started through grant funding</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>Redundant and robust fiber in technology parks and major regional thoroughfares</li> <li>Redundant electrical grid</li> <li>Outdoor amenities attractive to technology professionals are abundant in the region</li> </ul>	<ul style="list-style-type: none"> <li>Keeping broadband infrastructure up to date</li> <li>Lack of last-mile and middle-mile coverage throughout the region</li> <li>Lack of co-working spaces for people who work remotely</li> <li>Competitive wages may not be attractive when recruiting experienced workers from outside the region although cost of living is lower in the region</li> </ul> <p>No one outside the region knows the CGI and NGC success story as it relates to workforce</p>	<ul style="list-style-type: none"> <li>Capacity continues to increase for site-readiness</li> <li>Region has made some early stage investments into UAV</li> <li>Synergies exist between Eastern Kentucky and the UAV Center</li> </ul>	<ul style="list-style-type: none"> <li>Aging broadband infrastructure threatens the region's ability to recruit and sustain technology businesses</li> <li>Other rural areas across the U.S. are catching up to the region with broadband deployment; competition is increasing</li> </ul>



## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Innovation</b>	<ul style="list-style-type: none"> <li>• Success story of UAV flight with Medicine Drop at RAM puts the region on the map for innovation in unmanned systems</li> <li>• Relationships built with UAV companies (Flirty and Aurora)</li> </ul>	<ul style="list-style-type: none"> <li>• Low activity in new business startups in the technology space exists in the region</li> <li>• Few small to medium-sized technology firms exist in SWVA</li> </ul>	<ul style="list-style-type: none"> <li>• UAVs provide distribution options in the absence of interstate highways moving goods and services</li> </ul>	<ul style="list-style-type: none"> <li>• Politics and red tape involved with inter-state partnerships could present barriers</li> </ul>
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## REGION ONE STRATEGIES

The GO VA Region One Growth and Diversification Plan is ***born of the region and grounded by a realistic assessment of the growth possibilities with the existing assets in SWVA.*** While there are certainly aspirational goals contained within the plan, it also includes a practical approach to achieve results and improve the economic climate given the current economic conditions and prevailing assets in the region, focusing on the priority areas outlined by the GO VA State Board.

It is clear, Southwest Virginia faces a steep climb – dealing with significant challenges such as sharp population declines, alarming health metrics and low educational attainment rates. While this plan is not a regional strategic economic development plan, nor is it a comprehensive approach to address all the challenges facing Southwest Virginia, it does present a blueprint specifically designed to diversify the region's economy.

In pursuit of the objective to increase the availability of high-wage jobs, the GO VA Region One Council focused on four key target industries:

- Advanced Manufacturing
- Agriculture and Food and Beverage Manufacturing
- Information and Emerging Technologies
- Energy and Minerals

By concentrating resources around the development of these economic clusters, SWVA will foster its own regional competitiveness and companies will find that they have access to a robust network of suppliers, talent, expertise, data, and training resources throughout Region One.

While specific approaches for developing these targeted industry clusters were highlighted in the SWOT analyses, ***certain strategies will underpin all of the industry sectors operating within the region and will lead to bolstering our region's existing employers, encouraging homegrown enterprises and creating a solid foundation attractive to prospective industries.*** For example, those focused on developing the human capital of the region; retaining and recruiting talent; investing in infrastructure; and encouraging innovation will serve to assist any industry in the region.

With the focus on GO VA 1's Goal to "Repurpose the SWVA economy to grow high wage jobs," and working with the GOVA Region One Council, business and community leaders, the following potential strategies were identified as underpinning priorities.

- Talent Development: Leadership Capacity Building; Educational Alignment; Talent Recruitment & Retention
- Infrastructure: Industrial and Technology Sites and Buildings; Broadband
- Innovation: Entrepreneurship and Scale up Activities

Each are explored in more details within this section.

## Focus Areas

### 1. Educational Alignment

***Coordinate and apply programs across the educational spectrum, from Pre-K to post-graduate degree levels, as well as workforce initiatives, to align with industry needs/expectations and economic development targets***

An enduring and familiar complaint of business and industry has been the fragmented nature of the Commonwealth's workforce development infrastructure. Many attempts have been made to alleviate the issues resulting from dozens of workforce development programs operating within the state. Additionally, aligning these many programs with employer needs requires constant attention and intentional communication.

GO VA 1 recognizes this conundrum and seeks to invest in the continued alignment at all levels of the educational infrastructure with the articulated needs of business and industry through the following strategies.

Educational Alignment	Potential Funding Opportunities
Strategy: Align education and training programs (high school, secondary and workforce) with needs and expectations of target industries	<ul style="list-style-type: none"> <li>Activities which strengthen relationships and communication channels between educational entities and each target industry</li> <li>Activities which facilitate easy access to various programs such as establishing primary points of contact for coordinating workforce and economic development projects and assist businesses in navigating different programs – a champion to advocate for continuous alignment of programs with expressed needs</li> </ul>
Strategy: Build a strong pipeline of participants for programs (certifications, associates, bachelors or above) valued by the target market employers	<ul style="list-style-type: none"> <li>Efforts which support innovative and flexible avenues for assisting existing training programs to recruit registrants helping to broaden mindsets to a variety of new employment cluster opportunities</li> <li>Activities which assist with designations as a Work Ready Community (WRC) to improve the region's ratings as it relates to industry recognized credentials; build credentials and certifications that are transferable between industries and geographic areas</li> <li>Activities which create and promote meaningful internship and apprenticeship programs engaging youth from high school to college in target industries</li> </ul>
Strategy: Increase awareness of both occupational, educational, and workforce opportunities available in region	<ul style="list-style-type: none"> <li>Initiatives which introduce the region's youth to occupational career opportunities early – preferably in middle school</li> <li>Initiatives which educate career coaches, guidance counselors, parents and grandparents of occupational opportunities</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Strategy: Increase industry recognized certifications, credentials and degrees related to the target industries	<ul style="list-style-type: none"> <li>· Incentivize enrollment into programs identified as critical to the growth of existing businesses</li> <li>· Efforts to ensure pathways from various levels of programming to careers are clearly outlined and promoted</li> </ul>
<b>Potential Metrics</b>  (Based upon nature of funded projects)	<ul style="list-style-type: none"> <li>· Creation of four industry clusters</li> <li>· Number of career pathways</li> <li>· Number of industry recognized certifications/credentials</li> <li>· Number of career coaches, guidance counselors, parent and grandparents engaged in communication of opportunities</li> <li>· Number of participants and graduates of programs</li> <li>· Number of inquiries regarding training programs</li> <li>· Number of internships and apprenticeships</li> <li>· Number of new partnerships created</li> </ul>
<b>Possible Funding Source</b>	<ul style="list-style-type: none"> <li>· Appalachian Regional Commission</li> <li>· Local Government or Regional Economic Development Organizations</li> <li>· Business and Industry</li> <li>· Private Foundations</li> </ul>

## 2. Talent Recruitment and Retention

***Leverage regional place-based assets to create communities attractive to millennials who can move to the area and bring their own jobs***

The key challenge facing Southwest Virginia as identified by two-thirds of the respondents to the GO VA Region One Community Survey is the declining population. Nearly one in four SWVA residents are considering leaving the geographic boundaries of Region One. Of these, forty-three percent would leave for better job opportunities. As SWVA focuses as much on supporting existing businesses as new industrial recruitment, attracting and retaining talent becomes a focal point. Retaining the talent produced by regional schools and colleges is a key part of talent development. Rural regions don't appeal to everyone. However, for some, anti-urban millennials, Southwest Virginia may be the perfect place.

<b>Talent Recruitment and Retention</b>	<b>Potential Funding Opportunities</b>
Strategy: Create communities in which people want to live	<ul style="list-style-type: none"> <li>· Creative approaches to leveraging key assets for downtown revitalization</li> <li>· Efforts to explore mixed-use facilities to create vibrant downtown centers within SWVA communities</li> </ul>
Strategy: Reverse population decline in creative ways	<ul style="list-style-type: none"> <li>· Creative land-use programs to recruit people to SWVA</li> <li>· Efforts to leverage place-based assets to attract millennials who appreciate the lifestyle of SWVA</li> <li>· Initiatives which "control the story" of the region – highlight the many positive stories from the region to counteract the negatives told in various media outlets</li> <li>· Efforts to target the "workforce in exile" -- the SWVA natives who have moved away but have opportunities to return and bring their own jobs with them</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

<b>Potential Metrics</b>	<ul style="list-style-type: none"> <li>• Number of downtown community projects</li> <li>• Number of mixed use facilities in downtown communities</li> <li>• Dollars leveraged by GO VA funds</li> <li>• Increase in population living in downtowns</li> <li>• Increase in downtown visitation</li> </ul>
<b>Possible Funding Source</b>	<ul style="list-style-type: none"> <li>• Appalachian Regional Commission</li> <li>• Local Government or Regional Economic Development Organizations</li> <li>• Private Foundations</li> </ul>

### 3. Leadership Development

#### ***Strengthen existing and next generation leadership to help realize a compelling vision for the region***

Leadership capacity is a critical component in the solution to the complex issues facing Southwest Virginia. The pursuit of a diversified economy and a growing population require business, government, nonprofit organizations and community groups to develop and continually nurture leadership capacity. Building leadership capacity was a common theme in regional discussions with business, community and government leaders. Additionally, the regional survey conducted as part of the development of the regional plan indicated 34 percent of respondents felt the most important tool/resource to build economic growth in SWVA was to work with elected officials to create change. Furthermore, 22 percent of respondents felt building leadership capacity in the form of local leadership training was an important strategy.

These results reveal leadership capacity as a priority for GO VA Region One and the chart below contains potential approaches to leadership development along with possible measures associated with this strategy.

<b>Leadership Development</b>	<b>Potential Funding Opportunities</b>
Strategy: Strengthen existing and next generation leadership	<ul style="list-style-type: none"> <li>• Initiatives which cultivate leadership programs and mentoring opportunities with regional stakeholder groups</li> <li>• Efforts to develop emerging leaders including students, young professionals and millennials</li> <li>• Develop training programs, internships, networks and resources such as a regional leadership academy</li> <li>• Foster an environment which promotes community engagement and volunteerism for the long-term</li> <li>• Encourage succession planning in both public and private sector organizations</li> </ul>
<b>Potential Metrics</b>	<ul style="list-style-type: none"> <li>• Number of leadership programs in the region</li> <li>• Number of participants in programs</li> <li>• Volunteer engagement in community projects</li> <li>• Number of new partnerships created</li> </ul>
<b>Possible Funding Source</b>	<ul style="list-style-type: none"> <li>• Appalachian Regional Commission</li> <li>• Local Government or Regional Economic Development Organizations</li> <li>• Collaborative Stakeholder Groups</li> <li>• Business and Industry</li> <li>• Private Foundations</li> </ul>

#### 4. Infrastructure

##### *Invest in “ready-to-go” industrial sites which are certified for target industries*

Industrial and technology parks are among the most critical factors supporting economic development. Existing industry with a need to expand or corporations looking to establish new operations within the region understand a fundamental criterion of their decision to invest in the region is whether or not ready-to-go sites are available. Second only to an adequately trained and abundant workforce, development-ready sites are the most critical factor in site selection decisions. The availability of development-ready sites varies across GO VA Region One and the best way for a community to demonstrate to the corporate world that they are ready and willing to support their operation is to invest in an industrial, technology or business park.

A priority for GO VA Region One is the investment in infrastructure enhancements and development of industrial sites to a ready-to-go level through the following strategies.

Infrastructure	Potential Funding Opportunities
Strategy: Ensure current and new sites are “ready-to-go” for industry targets	<ul style="list-style-type: none"> <li>Efforts to inventory and assess industrial and technology parks and identify needed infrastructure benchmarking against industry target needs; maintain inventory</li> <li>Initiatives supporting certification of industrial parks for specific industry targets</li> <li>Activities encouraging collaboration for joint site development and industrial facility authorities for shared revenue opportunities</li> </ul>
Strategy: Assess and upgrade utilities and broadband to remain competitive	<ul style="list-style-type: none"> <li>Effort to upgrade/maintain utilities including broadband to industrial and technology sites</li> </ul>
Strategy: Establish larger, regional industrial sites attractive to the target industries	<ul style="list-style-type: none"> <li>Encourage establishment of Regional Industrial Facility Authorities to enable the development of revenue sharing opportunities for regional parks</li> </ul>
<b>Potential Metrics</b>	<ul style="list-style-type: none"> <li>Number of technology and industrial parks and unique sites and buildings in ready-to-go state</li> <li>Number of certified sites related to the target industries</li> <li>Number of upgrades to infrastructure including utilities and broadband</li> <li>Number of inquiries regarding industrial, technology sites and buildings</li> <li>Number of regional partnerships established</li> <li>Number of new firms recruited or business expansions</li> </ul>
<b>Possible Funding Source</b>	<ul style="list-style-type: none"> <li>Appalachian Regional Commission</li> <li>Economic Development Administration</li> <li>USDA</li> <li>Local Government or Regional Economic Development Organizations</li> <li>Business and Industry</li> <li>Private Foundations</li> </ul>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### 5. Innovation & Scale up Support

*Build an ecosystem to support the creation and expansion of new, emerging and existing businesses*

The vast majority of jobs in the U.S. are created by existing businesses or new startup ventures. Only 1 to 4 percent of total job creation each year can be attributed to companies who move from one state to another. Less than one-sixth of job creation comes from out-of-state businesses expanding into another state nationally. However, **80 percent of total job creation in every state comes from “home-grown” businesses, those which start up or are already present in a state.**\*

Home-grown entrepreneurs and existing businesses are rooted in the region, having long supported communities and employing its citizens for many years. In addition, many have opportunities for growth through either product diversification or market expansion. **GO VA Region One is focused on supporting existing employers, encouraging innovation through research and development, new market/product development as well as encouraging entrepreneurial ventures.**

Innovation & Scale Up	Potential Funding Opportunities
Strategy: Support the growth and expansion of existing and emerging employers as well as agribusinesses	<ul style="list-style-type: none"><li>• Programs designed to assist existing companies with evolving their business focusing on accelerated product, service, market and operational initiatives leading to new profitable growth opportunities.</li><li>• Activities analyzing supply chains serving existing industry and new outlets for local agricultural assets</li><li>• Efforts to leverage HUB Zones, educating existing businesses of the benefits and emphasize their presence in economic development outreach/marketing</li><li>• Programs encourage mentorship and peer-to-peer networks among entrepreneurs</li><li>• Activities encouraging GO VA 1 business-to-business relationships</li><li>• Programs supporting intrapreneurship – innovation within existing and growing businesses</li><li>• Activities leveraging opportunities for tech transfer and commercialization of university and college discoveries</li><li>• Initiatives encouraging the development and certification of organic farms</li></ul>

\* Mazerov, Michael. “State Job Creation Strategies Often Off Base.” Center on Budget and Policy Priorities. <https://www.cbpp.org/research/state-budget-and-tax/state-job-creation-strategies-often-off-base>



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Strategy: Encouraging entrepreneurial activity within the GO VA 1 geography	<ul style="list-style-type: none"> <li>Activities supporting the introduction of the region's youth to entrepreneurial concepts early, by incorporating entrepreneurship programming into the k12 curriculum</li> <li>Efforts to increase awareness of entrepreneurship and small business support resources</li> <li>Efforts to create a network of co-working and makerspace facilities throughout the region</li> <li>Initiatives increasing access to capital for early-stage and emerging businesses including capital resources outside GO VA 1</li> </ul>
<b>Potential Metrics</b>	<ul style="list-style-type: none"> <li>Number of companies expanding product lines or markets</li> <li>Number of companies engaged in supply chain analysis initiatives</li> <li>Number of companies educated on benefits of HUB Zones and companies taking advantage of the benefits</li> <li>Number of youth entrepreneurship programs and activities</li> <li>Number of youth engaged in programs</li> <li>Number of new businesses created</li> <li>Number of jobs created</li> </ul>
<b>Possible Funding Source</b>	<ul style="list-style-type: none"> <li>Appalachian Regional Commission</li> <li>Economic Development Administration</li> <li>USDA</li> <li>Local Government or Regional Economic Development Organizations</li> <li>Business and Industry</li> <li>Private Foundations</li> </ul>

### Proposal evaluation overview

GO Virginia Region One, will issue requests for proposals with specific criteria pertaining to the goals and strategies outlined in this Plan. The GO VA state board sets specific scoring criteria, which could change as economic circumstances dictate, and the regional council will follow the guidelines prescribed at the state level. Fundamentally, funded initiatives should demonstrate the following or be able to answer the question below.

- Does the initiative focus on one or more of the above strategies?
- Does the project demonstrate collaboration between multiple jurisdictions and stakeholders in partnership?
- Does the initiative focus on the goals of GO Virginia and GO Virginia Region One which are to:
  - Create high-wage jobs,
  - Create, expand or sustain companies in Region One, and
  - Diversify the economy of Region One?
- Will the outputs and outcomes of the initiative address the example metrics included above?
- How will the initiative be sustained after the grant period?

### Plan Implementation

As the Region One Council begins the implementation of the Plan, consideration should be given to the priorities of the strategies. Utilizing data pertaining to the region and the labor shed, council members may identify which strategies are the best use of the limited funds at any given time. Project proposals should be solicited based upon these priorities.

Additionally, the hundreds of potential project ideas which were generated during the stakeholder engagement process in developing the Plan will serve as foundational documents for working groups charged with implementing the Plan and generating project ideas.

### Transitioning from SWVA Economic Forum Action Teams to GO VA Working Groups

In May 2016, the SWVA Economic Forum was held on the campus on The University of Virginia's College at Wise for the purpose of discussing ideas and strategies for moving SWVA forward in the midst of the sharp decline in the energy sector which began in 2012. While the initial event focused on the coalfield counties, The Forum expanded in 2017 to include the thirteen counties and three cities encompassing the GO VA Region One footprint.

The Forum planning team, comprised of 27 members from across the broader region knew that work was underway to form GO VA at the state level but the region was reeling with the loss of nearly 4000 high wage jobs in the coal and gas industry. Therefore, until the GO VA organizational effort was complete and a Growth and Diversification Plan was developed for the region, seven action teams were created to begin working on initiatives to:

1. Develop innovative opportunities for youth and innovative education programs
2. Foster health and wellness throughout Southwest Virginia
3. Increase entrepreneurship opportunities and promote collaboration
4. Provide support for existing businesses and for business attraction
5. Promote the region through marketing, communication and messaging
6. Enhance economic opportunities in agriculture and natural resources
7. Promote alternative energy through the use of solar

Now that the GO VA 1 council has been certified and the Growth and Diversification Plan published, the Forum action team structure will transition to align with the goals and strategies contained within this Plan. This new working team structure will support the continued development and implementation of the regional Plan and will engage both industry subject matter experts (SMEs) as well as the components of the business support infrastructure to include workforce development, economic development and the innovation ecosystem. The implementation infrastructure includes the following working teams:

- Advanced Manufacturing
- Agriculture & Food and Beverage Manufacturing
- Information & Emerging Technology
- Energy & Minerals

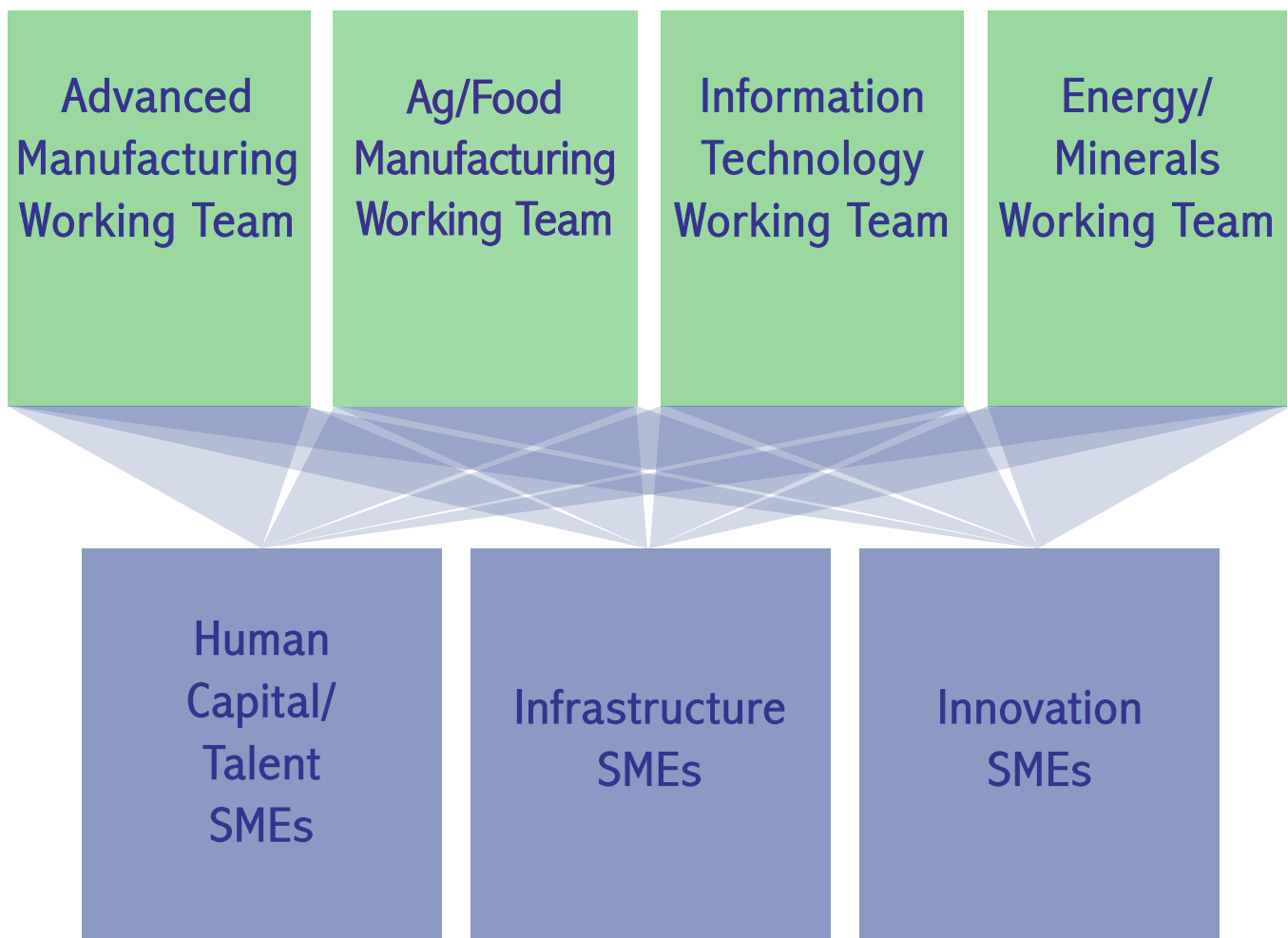
As seen through the development of the Growth and Diversification Plan, there is great value in the dialogue which occurs when you bring people together to discuss ideas and solve challenges. The working teams outlined above, assisted by the GO VA 1 support organization,

## GO VA Region One – Growth & Diversification Plan (August, 2017)

will focus on generating project ideas for each industry cluster utilizing data obtained through the development of the Plan and project ideas generated through the stakeholder engagement process. The support organization will assume the responsibility for convening meetings, facilitating the conversations, tracking progress, and ensuring the groups are inclusive and contain the right subject matter experts and key stakeholders in order to have meaningful and productive discussions and planning outcomes.

## GO Virginia Region One Implementation Infrastructure

### INDUSTRY TARGETS



## Business Support Groups & Workforce Development

## **GO VA Region One – Growth & Diversification Plan (August, 2017)**

As a coordination strategy, the support organization under the guidance of the GO VA 1 Council and stakeholders engaged in the working groups outlined above, will develop a regional asset map. This tool will provide industry, community, government and economic as well as workforce development leaders up-to-date data regarding workforce labor market data, workforce skills gap analysis needed to make data-driven decisions as the GO VA Plan is implemented.

Annually, or as new information is obtained or progress is achieved, the GO VA 1 Growth and Diversification Plan will be re-evaluated and necessary modifications will be made as guided by the Regional Council.

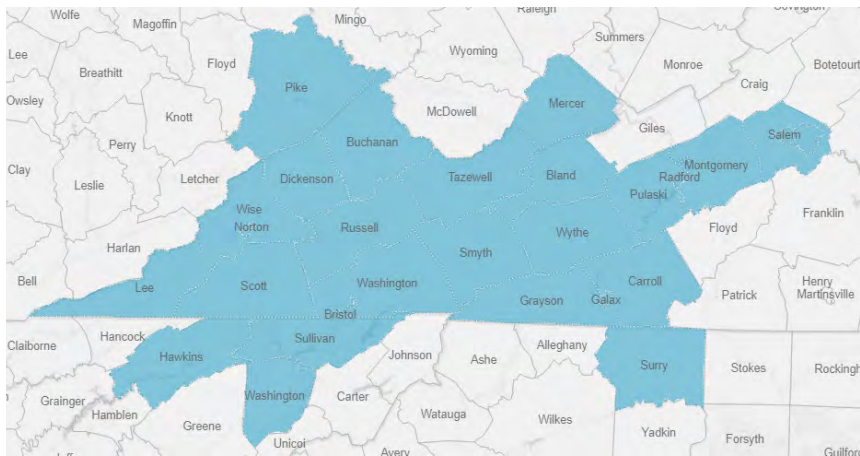
### **GO Virginia Region One – Communication Strategy**

Once approved by the GO VA 1 Regional Council and the GO Virginia State Board, Region One will issue public press releases outlining the purpose and priorities of the Plan. The regional council will also coordinate, through its support organization, events to promote the Plan, field questions on the purpose of the Plan and outline the process for submitting proposals.

## Appendix 1: Labor Shed

A region's labor shed reflects the geographic area from which firms attract their workers. Consequently, when attracting firms to the region it is important to include the skills of all potential workers even if they reside outside the GO VA 1 region. In addition, some residents of the GO VA 1 region work for firms outside of the regional footprint. Oftentimes, they receive intraregional training so it is important for training providers and educators to take those skills into account when developing their offerings.

The definition for the Go VA 1 labor shed considers the mobility of the residents commuting into or out of the region. In addition to the 13 counties and 3 cities in the GO VA 1 region, the following localities are used to define the GO VA 1 labor shed:



- City of Roanoke, Virginia
- City of Salem, Virginia
- Hawkins County, Tennessee
- Mercer County West Virginia
- Montgomery County, Virginia
- Pike County, Kentucky
- Pulaski County, Virginia
- Radford City, Virginia
- Roanoke County, Virginia
- Sullivan County, Tennessee
- Surry County, North Carolina
- Washington County, Tennessee

All the localities except the City of Salem were added because they have at least a combination of 600 people community to or from the GO VA 1 region (see the table below). The City of Salem (421 commuters to and from the region) was added because it is in the center of Roanoke County and City. Fairfax County was excluded even though it had 827 commuters to and from the region because it was not contiguous with the region's boundaries.\*

**Number of Residents Commuting To and From Go VA Region 1 with 600 or More Commuters, 2017Q1**

Locality	Total Commuters
Washington County, Virginia	37,389
Tazewell County, Virginia	24,727
Smyth County, Virginia	24,587
Wise County, Virginia	21,990
Wythe County, Virginia	20,911
Russell County, Virginia	16,207
Carroll County, Virginia	15,008
Sullivan County, Tennessee	13,715

\* Source data used to calculate commuting patterns include survey-based information such as from the ACS survey where, in some cases, longer-range commuting patterns do not necessarily indicate "regular" commuting patterns, since the data can include a significant percentage of temporary and/or transitional arrangements.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Buchanan County, Virginia	11,788
Lee County, Virginia	10,891
Bristol City, Virginia	10,718
Scott County, Virginia	8,899
Grayson County, Virginia	8,016
Galax City, Virginia	7,593
Dickenson County, Virginia	7,368
Norton City, Virginia	4,512
Bland County, Virginia	3,644
Mercer County, West Virginia	3,638
Pulaski County, Virginia	2,325
Washington County, Tennessee	2,108
Surry County, North Carolina	1,884
Montgomery County, Virginia	1,708
City of Roanoke, Virginia	1,100
Roanoke County, Virginia	991
Hawkins County, Tennessee	807
Pike County, Kentucky	654
Radford City, Virginia	645

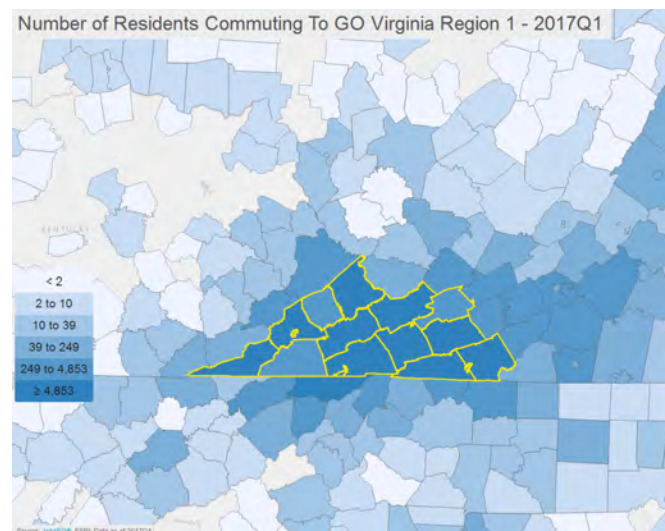
Source: JobsEQ

## Number of Residents Commuting To GO VA Region 1

### Number of Residents Commuting To Go VA Region 1 with 600 or More Commuters, 2017Q1

Locality	Commuters
Washington County, Virginia	18,677
Smyth County, Virginia	11,896
Tazewell County, Virginia	11,779
Wise County, Virginia	10,935
Wythe County, Virginia	10,137
Russell County, Virginia	9,109
Carroll County, Virginia	8,548
Sullivan County, Tennessee	6,432
Lee County, Virginia	6,077
Buchanan County, Virginia	5,703
Grayson County, Virginia	5,013
Bristol City, Virginia	4,853
Scott County, Virginia	4,342
Dickenson County, Virginia	4,104
Galax City, Virginia	2,386
Bland County, Virginia	1,972
Mercer County, West Virginia	1,964
Norton City, Virginia	1,592
Pulaski County, Virginia	751

Source: JobsEQ



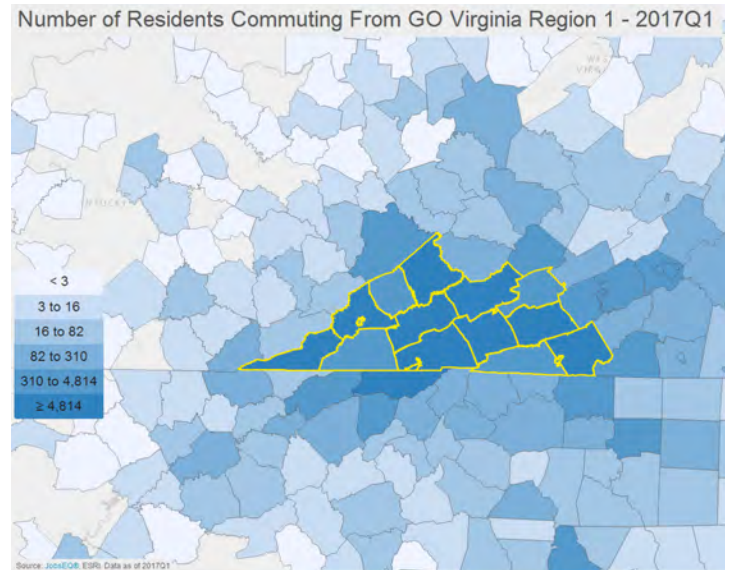


## Number of Residents Commuting From GO VA Region 1

**Number of Residents Commuting From Go VA Region 1 with 600 or More Commuters, 2017Q1**

Locality	Commuters
Washington County, Virginia	18,712
Tazewell County, Virginia	12,948
Smyth County, Virginia	12,691
Wise County, Virginia	11,054
Wythe County, Virginia	10,774
Sullivan County, Tennessee	7,283
Russell County, Virginia	7,098
Carroll County, Virginia	6,460
Buchanan County, Virginia	6,085
Bristol City, Virginia	5,864
Galax City, Virginia	5,207
Lee County, Virginia	4,815
Scott County, Virginia	4,556
Dickenson County, Virginia	3,264
Grayson County, Virginia	3,004
Norton City, Virginia	2,920
Washington County, Tennessee	1,676
Mercer County, West Virginia	1,674
Bland County, Virginia	1,672
Pulaski County, Virginia	1,574
Surry County, North Carolina	1,478
Montgomery County, Virginia	1,135
City of Roanoke, Virginia	850
Roanoke County, Virginia	675

Source: JobsEQ





## Appendix 2: Cluster Definitions

With the exception of information technology, clusters in this report are identified by industry. The information technology cluster is defined by occupations because it is not necessarily tied to a particular industry sector but is emerging in importance and pays relatively high wages compared the region's average. The occupations that make up the information technology cluster are listed in the table on page 58 of the report.

The 22 industries clusters used in this report are defined as follows:

### Agriculture

- 111 Crop Production
- 112 Animal Production
- 114 Fishing, Hunting and Trapping
- 115 Support Activities for Agriculture and Forestry
- 3111 Animal Food and Beverage Manufacturing
- 3112 Grain and Oilseed Milling
- 3253 Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing

### Auto/Auto-related

- 811 Repair and Maintenance
- 3336 Engine, Turbine, and Power Transmission Equipment Manufacturing
- 3361 Motor Vehicle Manufacturing
- 3362 Motor Vehicle Body and Trailer Manufacturing
- 3363 Motor Vehicle Parts Manufacturing

### Chemical

- 3251 Basic Chemical Manufacturing
- 3252 Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
- 3255 Paint, Coating, and Adhesive Manufacturing
- 3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing
- 3259 Other Chemical Product and Preparation Manufacturing
- 3261 Plastics Product Manufacturing
- 3262 Rubber Product Manufacturing
- 3271 Clay Product and Refractory Manufacturing
- 3272 Glass and Glass Product Manufacturing
- 3274 Lime and Gypsum Product Manufacturing
- 3279 Other Nonmetallic Mineral Product Manufacturing

### Energy

- 486 Pipeline Transportation
- 2111 Oil and Gas Extraction
- 2121 Coal Mining
- 2123 Nonmetallic Mineral Mining and Quarrying
- 2131 Support Activities for Mining
- 2211 Electric Power Generation, Transmission and Distribution
- 2212 Natural Gas Distribution
- 3241 Petroleum and Coal Products Manufacturing

### Construction

- 2361 Residential Building Construction
- 2362 Nonresidential Building Construction
- 2371 Utility System Construction
- 2372 Land Subdivision
- 2373 Highway, Street, and Bridge Construction
- 2379 Other Heavy and Civil Engineering Construction
- 2381 Foundation, Structure, and Building Exterior Contractors

## GO VA Region One – Growth & Diversification Plan (August, 2017)

2382 Building Equipment Contractors  
2383 Building Finishing Contractors  
2389 Other Specialty Trade Contractors  
3273 Cement and Concrete Product Manufacturing

### Consumer Service

481 Air Transportation  
485 Transit and Ground Passenger Transportation  
487 Scenic and Sightseeing Transportation  
493 Warehousing and Storage  
531 Real Estate  
711 Performing Arts, Spectator Sports, and Related Industries  
713 Amusement, Gambling, and Recreation Industries  
721 Accommodation  
722 Food Services and Drinking Places  
812 Personal and Laundry Services  
814 Private Households

### Education

611 Educational Services  
712 Museums, Historical Sites, and Similar Institutions  
813 Religious, Grantmaking, Civic, Professional, and Similar Organizations

### Electric/Electronics Manufacturing

3332 Industrial Machinery Manufacturing  
3333 Commercial and Service Industry Machinery Manufacturing  
3341 Computer and Peripheral Equipment Manufacturing  
3342 Communications Equipment Manufacturing  
3343 Audio and Video Equipment Manufacturing  
3344 Semiconductor and Other Electronic Component Manufacturing  
3345 Navigational, Measuring, Electromedical, and Control Instruments Manufacturing  
3351 Electric Lighting Equipment Manufacturing  
3352 Household Appliance Manufacturing  
3353 Electrical Equipment Manufacturing  
3359 Other Electrical Equipment and Component Manufacturing

### Financial Service

521 Monetary Authorities - Central Bank  
522 Credit Intermediation and Related Activities  
523 Securities, Commodity Contracts, and Other Financial Investments and Related Activities  
524 Insurance Carriers and Related Activities  
525 Funds, Trusts, and Other Financial Vehicles  
533 Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)

### Food and Beverage Manufacturing

3113 Sugar and Confectionery Product Manufacturing  
3114 Fruit and Vegetable Preserving and Specialty Food and Beverage Manufacturing  
3115 Dairy Product Manufacturing  
3116 Animal Slaughtering and Processing  
3117 Seafood Product Preparation and Packaging  
3118 Bakeries and Tortilla Manufacturing  
3119 Other Food and Beverage Manufacturing  
3121 Beverage Manufacturing  
3122 Tobacco Manufacturing

### Freight Transportation

482 Rail Transportation  
483 Water Transportation  
484 Truck Transportation  
488 Support Activities for Transportation  
491 Postal Service  
492 Couriers and Messengers

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Health

621 Ambulatory Health Care Services  
622 Hospitals  
623 Nursing and Residential Care Facilities  
624 Social Assistance

### Machinery Manufacturing

3322 Cutlery and Handtool Manufacturing  
3325 Hardware Manufacturing  
3327 Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing  
3329 Other Fabricated Metal Product Manufacturing  
3331 Agriculture, Construction, and Mining Machinery Manufacturing  
3334 Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing  
3335 Metalworking Machinery Manufacturing  
3339 Other General Purpose Machinery Manufacturing  
3346 Manufacturing and Reproducing Magnetic and Optical Media  
3364 Aerospace Product and Parts Manufacturing  
3365 Railroad Rolling Stock Manufacturing  
3366 Ship and Boat Building  
3369 Other Transportation Equipment Manufacturing  
3391 Medical Equipment and Supplies Manufacturing  
3399 Other Miscellaneous Manufacturing

### Media

511 Publishing Industries (except Internet)  
512 Motion Picture and Sound Recording Industries  
515 Broadcasting (except Internet)  
519 Other Information Services  
3231 Printing and Related Support Activities

### Metal and Product Manufacturing

2122 Metal Ore Mining  
3311 Iron and Steel Mills and Ferroalloy Manufacturing  
3312 Steel Product Manufacturing from Purchased Steel  
3313 Alumina and Aluminum Production and Processing  
3314 Nonferrous Metal (except Aluminum) Production and Processing  
3315 Foundries  
3321 Forging and Stamping  
3323 Architectural and Structural Metals Manufacturing  
3324 Boiler, Tank, and Shipping Container Manufacturing  
3326 spring and Wire Product Manufacturing  
3328 Coating, Engraving, Heat Treating, and Allied Activities

### Pharmaceutical

3254 Pharmaceutical and Medicine Manufacturing

### Professional Service

516 Internet Publishing and Broadcasting  
517 Telecommunications  
518 Internet Service Providers, Web Search Portals, and Data Processing Services  
532 Rental and Leasing Services  
541 Professional, Scientific, and Technical Services  
551 Management of Companies and Enterprises  
561 Administrative and Support Services

### Public Administration

921 Executive, Legislative, and Other General Government Support  
922 Justice, Public Order, and Safety Activities  
923 Administration of Human Resource Programs  
924 Administration of Environmental Quality Programs

## GO VA Region One – Growth & Diversification Plan (August, 2017)

925 Administration of Housing Programs, Urban Planning, and Community Development  
926 Administration of Economic Programs  
927 Space Research and Technology  
928 National Security and International Affairs

### Other

9999 Unclassified

### Retail

423 Merchant Wholesalers, Durable Goods  
424 Merchant Wholesalers, Nondurable Goods  
425 Wholesale Electronic Markets and Agents and Brokers  
441 Motor Vehicle and Parts Dealers  
442 Furniture and Home Furnishings Stores  
443 Electronics and Appliance Stores  
444 Building Material and Garden Equipment and Supplies Dealers  
445 Food and Beverage Stores  
446 Health and Personal Care Stores  
447 Gasoline Stations  
448 Clothing and Clothing Accessories Stores  
451 Sporting Goods, Hobby, Book, and Music Stores  
452 General Merchandise Stores  
453 Miscellaneous Store Retailers  
454 Nonstore Retailers

### Textile/Leather

3131 Fiber, Yarn, and Thread Mills  
3132 Fabric Mills  
3133 Textile and Fabric Finishing and Fabric Coating Mills  
3141 Textile Furnishings Mills  
3149 Other Textile Product Mills  
3151 Apparel Knitting Mills  
3152 Cut and Sew Apparel Manufacturing  
3159 Apparel Accessories and Other Apparel Manufacturing  
3161 Leather and Hide Tanning and Finishing  
3162 Footwear Manufacturing  
3169 Other Leather and Allied Product Manufacturing

### Utilities

562 Waste Management and Remediation Services  
2213 Water, Sewage and Other Systems

### Wood/Paper

113 Forestry and Logging  
3211 Sawmills and Wood Preservation  
3212 Veneer, Plywood, and Engineered Wood Product Manufacturing  
3219 Other Wood Product Manufacturing  
3221 Pulp, Paper, and Paperboard Mills  
3222 Converted Paper Product Manufacturing  
3371 Household and Institutional Furniture and Kitchen Cabinet Manufacturing  
3372 Office Furniture (including Fixtures) Manufacturing  
3379 Other Furniture Related Product Manufacturing

## Appendix 3: Regional Variations by Planning District

This appendix provides high-level industry and workforce information to show the regional variation in the GO VA 1 region by planning district commission.

### LENOWISCO

The health care and social assistance sector employs the most people in LENOWISCO (Planning District Commission 1) followed by retail trade and educational services. Based on its current mix of industries, the region is expected to shed an annual average 0.8% employment over the next ten years beginning with the four quarters ending with the first quarter of 2017.

Industry Snapshot in LENOWISCO, VA PDC

NAICS	Industry	Current			Historical					Forecast		
		Four Quarters Ending with 2017q1			Total Change over the Last 5 Years	Empl Last 'n' Years 1   3   5	Average Annual % Change in Employment 2012q1-2017q1			Over the Next 10 Years		
		Employment	Avg. Annual Wages	Location Quotient			LENOWISCO, VA PDC	GO Virginia Region 1	Virginia	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
62	Health Care and Social Assistance	4,710	\$35,426	1.24	-433		-1.7%	-0.7%	1.7%	924	288	0.6%
44	Retail Trade	4,055	\$23,287	1.40	-493		-2.3%	-0.8%	0.6%	1,201	-323	-0.8%
61	Educational Services	2,930	\$31,849	1.32	-166		-1.1%	-1.4%	0.0%	577	-315	-1.1%
92	Public Administration	2,854	\$43,421	2.24	66		0.5%	1.2%	0.7%	634	-452	-1.7%
72	Accommodation and Food Services	1,980	\$13,342	0.83	-111		-1.1%	0.4%	2.2%	659	-175	-0.9%
23	Construction	1,272	\$29,670	0.87	-1,571		-14.9%	-6.2%	0.8%	245	-28	-0.2%
11	Agriculture, Forestry, Fishing and Hunting	1,234	\$8,150	3.19	69		1.2%	1.1%	0.7%	390	-244	-2.2%
56	Administrative and Support and Waste Management and Remediation Services	1,214	\$22,581	0.70	-275		-4.0%	-0.8%	2.3%	267	-32	-0.3%
31	Manufacturing	1,148	\$40,010	0.52	-119		-2.0%	-1.3%	0.2%	244	-192	-1.8%
48	Transportation and Warehousing	825	\$47,452	0.74	-248		-5.1%	-0.8%	2.5%	196	-138	-1.8%
81	Other Services (except Public Administration)	818	\$27,995	0.69	-157		-3.4%	-1.1%	0.8%	195	-73	-0.9%
54	Professional, Scientific, and Technical Services	816	\$44,676	0.46	-120		-2.7%	1.4%	0.9%	161	-59	-0.7%
21	Mining, Quarrying, and Oil and Gas Extraction	609	\$61,696	5.66	-1,832		-24.2%	-13.2%	-9.2%	135	-95	-1.7%
52	Finance and Insurance	519	\$35,492	0.49	-48		-1.8%	-1.2%	1.7%	115	-62	-1.3%
42	Wholesale Trade	481	\$51,357	0.46	-262		-8.3%	-5.5%	-0.3%	100	-53	-1.2%
51	Information	332	\$39,838	0.62	-310		-12.4%	-6.5%	-1.4%	70	-78	-2.7%
71	Arts, Entertainment, and Recreation	315	\$18,107	0.60	-40		-2.3%	0.3%	1.5%	92	-21	-0.7%
55	Management of Companies and Enterprises	227	\$59,671	0.58	-28		-2.3%	-2.8%	-0.1%	45	-24	-1.1%
53	Real Estate and Rental and Leasing	212	\$27,382	0.47	14		1.4%	-1.6%	0.6%	44	-30	-1.5%
22	Utilities	176	\$71,682	1.23	-53		-5.2%	-1.1%	0.1%	41	-33	-2.0%
99	Unclassified	58	\$29,587	1.08	58		n/a	n/a	39.8%	14	-4	-0.8%
Total - All Industries		26,786	\$32,177	1.00	-6,058		-4.0%	-1.5%	1.0%	6,230	-2,144	-0.8%

Source: JobsEQ®  
Data as of 2017Q1

Note: Figures may not sum due to rounding.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

All of the clusters in LENOWISCO are forecast to see declines in employment over the next ten years beginning with the first quarter of 2017. The exception is the health care cluster where employment is expected to grow an average 0.59% over the next ten years. It also pays an annual average wage higher than the average for the region but it is not considered an export industry. In other words, it grows based on population growth and demographics rather than demand from consumers outside of the region.

### Industry Clusters for LENOWISCO, VA PDC as of 2017Q1























Industry Group	Average Annual Employment		Average Wages	LQ
	Forecast Rate (%)	2017Q1-2027Q1		
Food Mfg.	-1.21		\$29,754	0.92
Agricultural	-2.09		\$4,557	2.89
Chemical	-3.65		\$40,737	0.55
Wood/Paper	-2.25		\$28,684	4.70
Auto/Auto-related	-0.74		\$42,641	1.14
Machinery Mfg.	-1.07		\$38,916	0.92
Energy	-1.89		\$59,078	3.59
Retail	-0.86		\$26,080	1.15
Professional Svc.	-0.65		\$35,221	0.60
Consumer Svc.	-0.92		\$15,556	0.69
Education	-1.14		\$30,766	1.16
Construction	-0.32		\$30,383	0.92
Freight Tran.	-1.88		\$52,164	1.08
Utilities	-1.81		\$34,423	1.16
Public Admin.	-1.71		\$42,691	2.24
Health	0.59		\$35,364	1.24

[Source: JobsEQ®](#)



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Occupation Snapshot in LENOWISCO, VA PDC

SOC			Current					Historical				Forecast				
			Four Quarters Ending with 2017q1					2017q1	Total Change over the Last 5 Years	Avg Ann % Chg in Empl 2012q1-2017q1			Over the Next 10 Years			
			Empl	Avg. Annual Wages¹	Location Quotient	Unempl	Unempl Rate			Empl	LENO&WISCO, VA PDC	GO Virginia Region 1	Virginia	Current Online Job Ads²	Total Repl Demand	Total Growth Demand
	43-0000	Office and Administrative Support Occupations	3,828	\$29,300	0.96	328	6.9%	-627	-3.0%	-0.9%	1.2%	74	849	-370	-1.0%	
	41-0000	Sales and Related Occupations	2,754	\$28,300	1.00	225	6.8%	-437	-2.9%	-1.4%	0.7%	225	932	-234	-0.9%	
	35-0000	Food Preparation and Serving Related Occupations	2,245	\$19,600	0.98	294	9.7%	-90	-0.8%	0.5%	2.3%	115	831	-193	-0.9%	
	25-0000	Education, Training, and Library Occupations	2,107	\$45,300	1.38	51	2.4%	-144	-1.3%	-1.2%	0.1%	15	420	-197	-1.0%	
	11-0000	Management Occupations	1,897	\$85,500	1.16	34	2.0%	-236	-2.3%	-1.0%	0.8%	98	758	-257	-1.4%	
	29-0000	Healthcare Practitioners and Technical Occupations	1,888	\$64,500	1.24	34	1.7%	-276	-2.7%	-0.8%	1.4%	104	396	53	0.3%	
	53-0000	Transportation and Material Moving Occupations	1,667	\$30,100	0.93	193	8.5%	-704	-6.8%	-2.4%	1.7%	113	370	-188	-1.2%	
	33-0000	Protective Service Occupations	1,569	\$35,400	2.72	63	4.2%	-42	-0.5%	0.3%	0.8%	28	385	-240	-1.6%	
	47-0000	Construction and Extraction Occupations	1,304	\$37,400	1.10	229	12.3%	-1,659	-15.1%	-6.6%	0.7%	14	235	-90	-0.7%	
	39-0000	Personal Care and Service Occupations	1,091	\$20,700	1.05	72	5.8%	-35	-0.6%	-0.3%	1.8%	22	218	32	0.3%	
	49-0000	Installation, Maintenance, and Repair Occupations	1,069	\$38,200	1.05	70	5.1%	-835	-10.9%	-4.6%	0.6%	20	250	-102	-1.0%	
	51-0000	Production Occupations	959	\$32,500	0.59	133	7.4%	-264	-4.8%	-1.4%	0.6%	20	240	-140	-1.6%	
	31-0000	Healthcare Support Occupations	845	\$23,600	1.12	66	6.4%	-63	-1.4%	-0.1%	1.8%	14	180	59	0.7%	
	37-0000	Building and Grounds Cleaning and Maintenance Occupations	827	\$22,000	0.88	117	10.6%	-106	-2.4%	-1.2%	1.2%	28	179	-68	-0.9%	
	13-0000	Business and Financial Operations Occupations	720	\$59,600	0.52	39	4.5%	-170	-4.2%	-1.8%	1.0%	102	156	-60	-0.9%	
	21-0000	Community and Social Service Occupations	700	\$37,500	1.64	12	1.9%	-26	-0.7%	-0.8%	1.2%	22	149	-4	-0.1%	
	15-0000	Computer and Mathematical Occupations	328	\$61,400	0.42	17	4.2%	-93	-4.8%	0.5%	1.0%	38	46	-18	-0.6%	
	17-0000	Architecture and Engineering Occupations	255	\$67,900	0.56	12	3.6%	-194	-10.7%	-4.4%	-0.5%	7	60	-29	-1.2%	
	27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	228	\$36,000	0.47	11	4.1%	-52	-4.0%	-0.8%	0.5%	9	79	-32	-1.5%	
	23-0000	Legal Occupations	199	\$66,200	0.90	4	2.5%	-4	-0.4%	-1.3%	0.2%	1	37	-19	-1.0%	
	19-0000	Life, Physical, and Social Science Occupations	173	\$62,400	0.77	6	3.3%	-27	-2.8%	-1.0%	0.2%	3	52	-19	-1.1%	
	45-0000	Farming, Fishing, and Forestry Occupations	134	\$31,900	0.76	15	9.8%	27	4.6%	3.1%	1.2%	0	58	-28	-2.3%	
Total - All Occupations			26,786	\$37,700	1.00	1119	1119	-6,058	-4.0%	-1.5%	1.0%	1,072	6,879	-2,144	-0.8%	

Source: JobsEQ®

Data as of 2017Q1 unless noted otherwise

Note: Figures may not sum due to rounding.

1. Occupation wages are as of 2016 and should be taken as the average for all Covered Employment

2. Data represent found online ads active within the last thirty days in any zip code intersection or within the selected region; data represents a sampling rather than the complete universe of postings



## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Cumberland Plateau

The retail sector employs the most people in Cumberland Plateau (Planning District Commission 2) followed by health and social services and educational services. Mining is the fourth largest sector in terms of employment but has a very large LQ of 18.51. Based on its current mix of industries, the region is expected to shed an annual average 0.8% employment over the next ten years beginning with the four quarters ending with the first quarter of 2017.

Industry Snapshot in Cumberland Plateau, VA PDC

NAICS		Industry		Current			Historical				Forecast			
				Four Quarters Ending with 2017q1			Total Change over the Last 5 Years	Empl Last 'n' Years	Average Annual % Change in Employment 2012q1-2017q1			Over the Next 10 Years		
Employment	Avg. Annual Wages	Location Quotient	Employment	1   3	Cumberland Plateau, VA PDC	GO Virginia Region 1	Virginia	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent				
44	Retail Trade	4,876	\$23,010	1.33	-358		-1.4%	-0.8%	0.6%	1,461	-282	-0.6%		
62	Health Care and Social Assistance	4,556	\$37,916	0.95	-265		-1.1%	-0.7%	1.7%	896	308	0.7%		
61	Educational Services	3,291	\$28,705	1.17	-418		-2.4%	-1.4%	0.0%	653	-304	-1.0%		
21	Mining, Quarrying, and Oil and Gas Extraction	2,519	\$72,928	18.51	-1,688		-9.7%	-13.2%	-9.2%	560	-390	-1.7%		
92	Public Administration	2,463	\$35,398	1.53	156		1.3%	1.2%	0.7%	555	-323	-1.4%		
72	Accommodation and Food Services	2,135	\$13,883	0.71	40		0.4%	0.4%	2.2%	709	-201	-1.0%		
23	Construction	2,038	\$37,674	1.10	-874		-6.9%	-6.2%	0.8%	394	-31	-0.2%		
81	Other Services (except Public Administration)	1,688	\$25,195	1.12	-216		-2.4%	-1.1%	0.8%	400	-173	-1.1%		
54	Professional, Scientific, and Technical Services	1,668	\$42,700	0.75	313		4.2%	1.4%	0.9%	341	-9	-0.1%		
31	Manufacturing	1,627	\$42,007	0.58	-757		-7.4%	-1.3%	0.2%	344	-287	-1.9%		
48	Transportation and Warehousing	1,400	\$47,121	1.00	-72		-1.0%	-0.8%	2.5%	333	-236	-1.8%		
56	Administrative and Support and Waste Management and Remediation Services	1,336	\$27,795	0.61	65		1.0%	-0.8%	2.3%	295	-29	-0.2%		
11	Agriculture, Forestry, Fishing and Hunting	925	\$13,885	1.89	50		1.1%	1.1%	0.7%	294	-174	-2.1%		
52	Finance and Insurance	854	\$38,167	0.63	-72		-1.6%	-1.2%	1.7%	189	-102	-1.3%		
42	Wholesale Trade	708	\$43,983	0.53	-161		-4.0%	-5.5%	-0.3%	147	-78	-1.2%		
51	Information	454	\$25,530	0.67	-272		-9.0%	-6.5%	-1.4%	102	-58	-1.4%		
55	Management of Companies and Enterprises	399	\$53,770	0.81	-66		-3.0%	-2.8%	-0.1%	80	-44	-1.2%		
22	Utilities	315	\$44,375	1.74	-106		-5.6%	-1.1%	0.1%	77	-23	-0.8%		
53	Real Estate and Rental and Leasing	264	\$29,497	0.46	-67		-4.4%	-1.6%	0.6%	54	-40	-1.6%		
71	Arts, Entertainment, and Recreation	258	\$15,144	0.39	19		1.6%	0.3%	1.5%	75	-18	-0.7%		
99	Unclassified	99	\$31,198	1.45	99		n/a	n/a	39.8%	23	-7	-0.8%		
Total - All Industries		33,873	\$35,437	1.00	-4,648		-2.5%	-1.5%	1.0%	7,903	-2,501	-0.8%		

Source: JobsEQ®

Data as of 2017Q1

Note: Employment figures are in thousands

Source: JoesEQ®

Data as of 2017Q1

Note: Figures may not sum due to rounding.

All of the clusters in Cumberland Plateau are forecast to see declines in employment over the next ten years beginning with the first quarter of 2017. The exception is the health care cluster where employment is expected to grow an average 0.66% over the next ten years. It also pays an annual average wage higher than the average for the region but it is not considered an export industry. In other words, it grows based on population growth and demographics rather than demand from consumers outside of the region.

## GO VA Region One – Growth & Diversification Plan (August, 2017)























### Industry Clusters for Cumberland Plateau, VA PDC as of 2017Q1

Industry Group	Average Annual Employment		Average Wages	LQ
	Forecast Rate (%) 2017Q1-	2027Q1		
Textile/Leather	-6.19		\$22,145	0.97
Agricultural	-1.97		\$11,521	1.78
Chemical	-2.94		\$30,722	0.55
Wood/Paper	-2.12		\$33,570	1.11
Electric/Electronics Mfg.	-3.32		\$46,135	1.16
Media	-1.02		\$22,495	0.71
Auto/Auto-related	-0.77		\$34,266	0.90
Machinery Mfg.	-1.48		\$46,128	1.36
Metal & Product Mfg.	-1.27		\$38,311	2.61
Energy	-1.70		\$77,867	8.91
Retail	-0.66		\$25,478	1.12
Professional Svc.	-0.32		\$38,867	0.67
Consumer Svc.	-1.03		\$17,872	0.65
Education	-1.00		\$26,649	1.16
Financial Svc.	-1.26		\$36,995	0.64
Construction	-0.20		\$37,511	1.10
Freight Tran.	-1.96		\$52,506	1.33
Utilities	-0.83		\$36,493	2.75
Public Admin.	-1.40		\$35,566	1.53
Health	0.66		\$39,780	0.95

[Source: JobsEQ®](#)

## GO VA Region One – Growth & Diversification Plan (August, 2017)

Occupation Snapshot in Cumberland Plateau, VA PDC

SOC			Title			Current					Historical				Forecast			
						Four Quarters Ending with 2017q1			2017q1		Total Change over the Last 5 Years	Avg Ann % Chg in Empl 2012q1-2017q1			Over the Next 10 Years			
						Empl	Avg. Annual Wages <sup>1</sup>	Location Quotient	Unempl	Unempl Rate		Empl	Cumberland Plateau, VA PDC	GO Virginia Region 1	Virginia	Current Online Job Ads <sup>2</sup>	Total Repl Demand	Total Growth Demand
	43-0000	Office and Administrative Support Occupations	5,016	\$30,200	1.00	439	7.4%	-251	-1.0%	-0.9%	1.2%	122	1,099	-483	-1.0%			
	41-0000	Sales and Related Occupations	3,441	\$30,500	0.99	290	7.2%	-385	-2.1%	-1.4%	0.7%	237	1,152	-206	-0.6%			
	53-0000	Transportation and Material Moving Occupations	2,756	\$31,400	1.21	312	9.4%	-623	-4.0%	-2.4%	1.7%	139	627	-317	-1.2%			
	47-0000	Construction and Extraction Occupations	2,753	\$40,800	1.83	408	13.0%	-1,339	-7.6%	-6.6%	0.7%	9	476	-235	-0.9%			
	25-0000	Education, Training, and Library Occupations	2,413	\$47,900	1.25	60	2.6%	-261	-2.0%	-1.2%	0.1%	20	489	-201	-0.9%			
	35-0000	Food Preparation and Serving Related Occupations	2,354	\$20,200	0.81	356	10.7%	35	0.3%	0.5%	2.3%	102	812	-201	-0.9%			
	11-0000	Management Occupations	2,173	\$89,200	1.05	47	2.5%	-166	-1.5%	-1.0%	0.8%	34	809	-239	-1.2%			
	29-0000	Healthcare Practitioners and Technical Occupations	2,141	\$66,100	1.11	43	1.9%	-145	-1.3%	-0.8%	1.4%	108	447	74	0.3%			
	51-0000	Production Occupations	1,559	\$34,000	0.76	192	8.6%	-590	-6.2%	-1.4%	0.6%	30	393	-222	-1.5%			
	49-0000	Installation, Maintenance, and Repair Occupations	1,529	\$38,500	1.19	100	5.5%	-568	-6.1%	-4.6%	0.6%	24	359	-138	-0.9%			
	33-0000	Protective Service Occupations	1,200	\$37,000	1.64	61	4.6%	9	0.1%	0.3%	0.8%	35	300	-142	-1.3%			
	13-0000	Business and Financial Operations Occupations	1,178	\$61,300	0.68	57	4.8%	-136	-2.2%	-1.8%	1.0%	38	254	-73	-0.6%			
	39-0000	Personal Care and Service Occupations	996	\$23,900	0.76	77	6.3%	8	0.2%	-0.3%	1.8%	15	219	16	0.2%			
	37-0000	Building and Grounds Cleaning and Maintenance Occupations	848	\$22,400	0.71	137	11.5%	-134	-2.9%	-1.2%	1.2%	34	181	-64	-0.8%			
	31-0000	Healthcare Support Occupations	833	\$25,600	0.87	74	6.9%	-28	-0.7%	-0.1%	1.8%	20	181	77	0.9%			
	15-0000	Computer and Mathematical Occupations	784	\$64,600	0.80	33	4.5%	164	4.8%	0.5%	1.0%	45	114	13	0.2%			
	21-0000	Community and Social Service Occupations	639	\$39,400	1.19	13	2.0%	-45	-1.4%	-0.8%	1.2%	28	133	-28	-0.4%			
	17-0000	Architecture and Engineering Occupations	440	\$70,200	0.76	19	4.1%	-158	-6.0%	-4.4%	-0.5%	4	104	-46	-1.1%			
	27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	326	\$39,000	0.53	15	4.6%	-17	-1.0%	-0.8%	0.5%	9	110	-36	-1.2%			
	19-0000	Life, Physical, and Social Science Occupations	187	\$64,100	0.66	7	3.6%	-30	-2.9%	-1.0%	0.2%	3	57	-11	-0.6%			
	23-0000	Legal Occupations	185	\$66,400	0.66	5	2.7%	-10	-1.1%	-1.3%	0.2%	0	35	-15	-0.8%			
	45-0000	Farming, Fishing, and Forestry Occupations	122	\$31,900	0.55	17	11.2%	22	4.1%	3.1%	1.2%	0	49	-22	-1.9%			
Total - All Occupations			33,873	\$40,400	1.00	n/a	n/a	-4,648	-2.5%	-1.5%	1.0%	1,056	8,399	-2,501	-0.8%			

Source: JobsEQ®

Data as of 2017Q1 unless noted otherwise

Note: Figures may not sum due to rounding

1. Occupation wages are as of 2016 and should be taken as the average for all Covered Employment

2. Data represent found online ads active within the last thirty days in job-zin code intersection or within the selected region; data represents a sampling rather than the complete universe of positions



## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Mount Rogers

The manufacturing sector employs the most people in Mount Rogers (Planning District Commission 3) followed by health care and social assistance, retail trade, and accommodation and food services. Based on its current mix of industries, the region is expected to shed an annual average 0.2% employment over the next ten years beginning with the four quarters ending with the first quarter of 2017.

Industry Snapshot in Mount Rogers, VA PDC

NAICS		Industry		Current			Historical				Forecast			
				Four Quarters Ending with 2017q1			Total Change over the Last 5 Years	Empl Last 'n' Years	Average Annual % Change in Employment 2012q1-2017q1			Over the Next 10 Years		
Employment	Avg. Annual Wages	Location Quotient	Employment	1   3	Mount Rogers, VA PDC	GO Virginia Region 1	Virginia	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent				
31	Manufacturing	14,250	\$43,968	2.20	-230		-0.3%	-1.3%	0.2%	3,064	-2,072	-1.6%		
62	Health Care and Social Assistance	11,294	\$36,149	1.01	-52		-0.1%	-0.7%	1.7%	2,276	1,365	1.1%		
44	Retail Trade	10,483	\$23,436	1.23	72		0.1%	-0.8%	0.6%	3,220	-84	-0.1%		
72	Accommodation and Food Services	6,971	\$15,188	0.99	263		0.8%	0.4%	2.2%	2,403	-139	-0.2%		
61	Educational Services	5,464	\$31,598	0.83	-293		-1.0%	-1.4%	0.0%	1,115	-212	-0.4%		
92	Public Administration	4,525	\$39,430	1.21	359		1.7%	1.2%	0.7%	1,068	-202	-0.5%		
23	Construction	3,784	\$35,609	0.88	-216		-1.1%	-6.2%	0.8%	758	211	0.5%		
56	Administrative and Support and Waste Management and Remediation Services	3,688	\$24,436	0.72	-29		-0.2%	-0.8%	2.3%	847	235	0.6%		
81	Other Services (except Public Administration)	3,054	\$22,569	0.87	54		0.4%	-1.1%	0.8%	753	-72	-0.2%		
48	Transportation and Warehousing	2,897	\$43,353	0.89	107		0.8%	-0.8%	2.5%	727	-202	-0.7%		
11	Agriculture, Forestry, Fishing and Hunting	2,895	\$16,747	2.54	140		1.0%	1.1%	0.7%	972	-253	-0.9%		
42	Wholesale Trade	1,832	\$41,544	0.59	-569		-5.3%	-5.5%	-0.3%	397	-45	-0.2%		
54	Professional, Scientific, and Technical Services	1,804	\$50,582	0.35	90		1.0%	1.4%	0.9%	377	69	0.4%		
52	Finance and Insurance	1,541	\$44,054	0.49	-60		-0.8%	-1.2%	1.7%	355	-59	-0.4%		
71	Arts, Entertainment, and Recreation	1,123	\$18,693	0.72	42		0.8%	0.3%	1.5%	342	15	0.1%		
51	Information	849	\$34,145	0.54	-74		-1.7%	-6.5%	-1.4%	194	-83	-1.0%		
55	Management of Companies and Enterprises	802	\$91,598	0.70	-125		-2.8%	-2.8%	-0.1%	167	-27	-0.3%		
53	Real Estate and Rental and Leasing	591	\$37,508	0.44	-39		-1.3%	-1.6%	0.6%	127	-41	-0.7%		
22	Utilities	525	\$51,988	1.25	102		4.4%	-1.1%	0.1%	133	-10	-0.2%		
21	Mining, Quarrying, and Oil and Gas Extraction	283	\$55,002	0.89	3		0.2%	-13.2%	-9.2%	67	-9	-0.3%		
99	Unclassified	151	\$27,605	0.95	151		n/a	n/a	39.8%	36	-2	-0.2%		
Total - All Industries		78,806	\$33,763	1.00	-303		-0.1%	-1.5%	1.0%	18,890	-1,616	-0.2%		
Source: JobsEQ® Data as of 2017Q1														

Source: JobsEQ®  
Data as of 2017Q1  
Note: Figures may not sum due to rounding.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

All of the clusters in Mount Rogers are forecast to see declines in employment over the next ten years beginning with the first quarter of 2017. The exception is the health care cluster where employment is expected to grow an average 0.59% over the next ten years. It also pays an annual average wage higher than the average for the region but it is not considered an export industry. In other words, it grows based on population growth and demographics rather than demand from consumers outside of the region.























### Industry Clusters for Mount Rogers, VA PDC as of 2017Q1

Industry Group	Average Annual Employment		LQ
	Forecast Rate(%) 2017Q1-2027Q1	Average Wages	
Textile/Leather	-4.91	\$21,557	4.72
Food Mfg.	-0.47	\$46,265	1.42
Agricultural	-0.89	\$15,389	2.45
Chemical	-2.30	\$51,085	3.81
Wood/Paper	-1.30	\$30,534	3.58
Electric/Electronics Mfg.	-1.72	\$47,374	1.95
Media	-1.15	\$26,108	0.64
Auto/Auto-related	-0.83	\$36,168	3.38
Machinery Mfg.	-1.10	\$44,837	1.55
Metal & Product Mfg.	-0.90	\$45,009	1.20
Coal/Oil/Power	-0.89	\$58,310	0.77
Retail	-0.10	\$26,625	1.06
Professional Svc.	0.37	\$41,782	0.53
Consumer Svc.	-0.19	\$20,266	0.88
Education	-0.39	\$28,855	0.85
Construction	0.48	\$34,880	0.89
Freight Tran.	-1.11	\$43,774	0.82
Utilities	0.24	\$35,588	1.88
Public Admin.	-0.46	\$38,610	1.21
Health	1.15	\$35,669	1.01
Energy	-0.89	\$58,310	0.77

[Source: JobsEQ®](#)

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### Occupation Snapshot in Mount Rogers, VA PDC

SOC			Current					Historical				Forecast			
			Four Quarters Ending with 2017q1			2017q1		Total Change over the Last 5 Years	Avg Ann % Chg in Empl 2012q1-2017q1			Over the Next 10 Years			
			Empl	Avg. Annual Wages <sup>1</sup>	Location Quotient	Unempl	Unempl Rate		Empl	Mount Rogers, VA PDC	GO Virginia Region 1	Virginia	Current Online Job Ads <sup>2</sup>	Total Repl Demand	Total Growth Demand
	43-0000	Office and Administrative Support Occupations	10,825	\$30,300	0.93	698	5.8%	-41	-0.1%	-0.9%	1.2%	259	2,470	-427	-0.4%
	51-0000	Production Occupations	9,249	\$33,700	1.93	681	6.9%	-7	0.0%	-1.4%	0.6%	183	2,425	-1,271	-1.5%
	41-0000	Sales and Related Occupations	8,366	\$29,800	1.03	489	5.6%	-247	-0.6%	-1.4%	0.7%	607	2,857	-105	-0.1%
	35-0000	Food Preparation and Serving Related Occupations	6,886	\$20,200	1.02	648	8.4%	347	1.0%	0.5%	2.3%	364	2,582	-107	-0.2%
	53-0000	Transportation and Material Moving Occupations	5,558	\$30,100	1.05	501	8.0%	64	0.2%	-2.4%	1.7%	307	1,370	-198	-0.4%
	11-0000	Management Occupations	5,383	\$90,200	1.12	83	1.8%	-84	-0.3%	-1.0%	0.8%	264	2,198	-269	-0.5%
	29-0000	Healthcare Practitioners and Technical Occupations	4,314	\$66,100	0.96	65	1.4%	62	0.3%	-0.8%	1.4%	375	923	393	0.9%
	25-0000	Education, Training, and Library Occupations	4,162	\$45,000	0.93	89	2.0%	-133	-0.6%	-1.2%	0.1%	48	879	-97	-0.2%
	47-0000	Construction and Extraction Occupations	3,296	\$36,400	0.94	429	10.8%	-20	-0.1%	-6.6%	0.7%	72	639	122	0.4%
	49-0000	Installation, Maintenance, and Repair Occupations	3,113	\$38,400	1.04	148	4.3%	-128	-0.8%	-4.6%	0.6%	124	765	-51	-0.2%
	39-0000	Personal Care and Service Occupations	2,953	\$21,300	0.97	155	5.0%	-39	-0.3%	-0.3%	1.8%	91	714	267	0.9%
	37-0000	Building and Grounds Cleaning and Maintenance Occupations	2,533	\$22,100	0.91	267	9.3%	-14	-0.1%	-1.2%	1.2%	118	573	-3	0.0%
	13-0000	Business and Financial Operations Occupations	2,185	\$61,800	0.54	89	3.7%	-73	-0.7%	-1.8%	1.0%	186	499	-22	-0.1%
	31-0000	Healthcare Support Occupations	2,071	\$24,300	0.93	130	5.5%	63	0.6%	-0.1%	1.8%	86	455	280	1.3%
	33-0000	Protective Service Occupations	1,848	\$37,600	1.09	76	3.9%	95	1.1%	0.3%	0.8%	44	489	-59	-0.3%
	21-0000	Community and Social Service Occupations	1,760	\$37,700	1.41	25	1.5%	-57	-0.6%	-0.8%	1.2%	76	386	94	0.5%
	17-0000	Architecture and Engineering Occupations	1,145	\$72,400	0.85	33	2.8%	-116	-1.9%	-4.4%	-0.5%	43	288	-99	-0.9%
	15-0000	Computer and Mathematical Occupations	1,034	\$64,600	0.45	41	3.5%	-16	-0.3%	0.5%	1.0%	88	152	38	0.4%
	27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	951	\$38,400	0.67	33	3.7%	3	0.1%	-0.8%	0.5%	26	337	-59	-0.6%
	45-0000	Farming, Fishing, and Forestry Occupations	447	\$25,300	0.86	42	8.7%	52	2.5%	3.1%	1.2%	5	254	-36	-0.8%
	19-0000	Life, Physical, and Social Science Occupations	371	\$64,000	0.56	10	2.5%	19	1.0%	-1.0%	0.2%	25	115	-5	-0.1%
	23-0000	Legal Occupations	356	\$76,900	0.54	7	1.9%	-34	-1.8%	-1.3%	0.2%	5	69	-1	0.0%
Total - All Occupations			78,806	\$37,800	1.00	n/a	n/a	-303	-0.1%	-1.5%	1.0%	3,396	21,439	-1,616	-0.2%

Source: JobsEQ®

Data as of 2017Q1 unless noted otherwise

Note: Figures may not sum due to rounding.

1. Occupation wages are as of 2016 and should be taken as the average for all Covered Employment

2. Data represent found online ads active within the last thirty days in any zip code intersecting or within the selected region; data represents a sampling rather than the complete universe of postings

## Appendix 4: Transferable Jobs from Coal Mining

The table on the following page shows potential occupations for which coal miners in the GO VA 1 labor shed are suitable to be trained. The nine bolded occupations in the first row are coal industry jobs with employment over 100 in the GO VA 1 labor shed. The ten occupations below each coal job title are the top jobs for which workers in the specified coal mining job can most easily be trained. It excludes any occupations that employ less than ten people in the region. For example, operating engineers in GO VA 1 have skills that lend themselves towards most easily re-training to be tapers; welders, cutters, solderers, and brazers; and insulation workers. The number in parentheses after the job title refers to the current employment in the GO VA 1 region. As workers are not as likely to take pay cuts when changing jobs, occupations with average annual wages less than 90% of the coal mining job's wage are excluded.

Occupations highlighted in green in the table on the next page are the transferable jobs from coal mining that support manufacturing industries. The predominant employer of these jobs is manufacturing. These six occupations are summarized in the table below. Many of these jobs, especially welding, soldering, and brazing workers (SOC 51-4121 & 51-4122), are projected to have a high level of replacement demand (workers that are retiring or switching to a new occupation) over the next ten years. In addition, if the region is successful in growing its manufacturing sector, demand for these occupations will climb higher. A large supply of potential labor needing minimal training can already be found in the region's coal mining industry. If coal mining employment continues to decline, these in-demand manufacturing occupations offer comparable wages and minimal additional training requirements to workers whose jobs may be in jeopardy.

**Manufacturing Occupations that Transfer from Prevalent Coal Mining Jobs in the GO VA Region One Labor Shed**

SOC	Title	Current		Forecast Over the Next 10 Years	
		Employment 2017Q1	Avg. Annual Wages 2016	Total Replacement Demand	Total Growth Demand
49-9043	Maintenance Workers, Machinery	511	\$40,500	78	-18
51-4121	Welders, Cutters, Solderers, and Brazers	1,916	\$39,400	616	-83
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	437	\$37,500	120	-99
51-4192	Layout Workers, Metal and Plastic	25	\$43,000	5	-6
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	68	\$57,100	29	-7
51-8099	Plant and System Operators, All Other	52	\$57,200	19	-6

Source: JobsEQ

Note: occupation wages should be taken as the average for all covered employment



## GO VA Region One – Growth & Diversification Plan (August, 2017)

Operating Engineers and Other Construction Equipment Operators (47-2073)	Continuous Mining Machine Operators (47-5041)	Roof Bolters, Mining (47-5061)	Supervisors of Construction and Extraction Workers (47-1011)	Excavating and Loading Machine and Dragline Operators (53-7032)	Electricians (47-2111)	Mobile Heavy Equipment Mechanics, Except Engines (49-3042)	Heavy and Tractor-Trailer Truck Drivers (53-3032)	Mine Cutting and Channeling Machine Operators (47-5042)
47-2082: Tapers (42)	53-7111: Mine Shuttle Car Operators (100)	53-7111: Mine Shuttle Car Operators (100)	49-2093: Electrical and Electronics Installers and Repairers, Transportation Equipment (83)	47-2082: Tapers (42)	47-2082: Tapers (42)	47-5042: Mine Cutting and Channeling Machine Operators (127)	43-5052: Postal Service Mail Carriers (1,394)	53-7111: Mine Shuttle Car Operators (100)
51-4121: Welders, Cutters, Solderers, and Brazers (1,916)	47-5061: Roof Bolters, Mining (231)	47-5012: Rotary Drill Operators, Oil and Gas (56)	47-2011: Boilermakers (64)	51-4121: Welders, Cutters, Solderers, and Brazers (1,916)	49-3043: Rail Car Repairers (175)	47-5021: Earth Drillers, Except Oil and Gas (84)	53-7041: Hoist and Winch Operators (14)	51-8093: Petroleum Pump System Operators, Refinery Operators, and Gaugers (68)
47-2131: Insulation Workers, Floor, Ceiling, and Wall (212)	53-7033: Loading Machine Operators, Underground Mining (91)	53-7071: Gas Compressor and Gas Pumping Station Operators (12)	51-8012: Power Distributors and Dispatchers (37)	47-2131: Insulation Workers, Floor, Ceiling, and Wall (212)	47-2171: Reinforcing Iron and Rebar Workers (69)	49-3043: Rail Car Repairers (175)	53-4021: Railroad Brake, Signal, and Switch Operators (184)	51-8013: Power Plant Operators (195)
51-4122: Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (437)	49-3043: Rail Car Repairers (175)	51-8099: Plant and System Operators, All Other (52)	27-2021: Athletes and Sports Competitors (47)	51-4122: Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (437)	53-7021: Crane and Tower Operators (172)	47-5061: Roof Bolters, Mining (231)	53-6011: Bridge and Lock Tenders (11)	53-7073: Wellhead Pumps (56)
47-2121: Glaziers (174)	53-7021: Crane and Tower Operators (172)	53-4031: Railroad Conductors and Yardmasters (404)	53-7071: Gas Compressor and Gas Pumping Station Operators (12)	53-7041: Hoist and Winch Operators (14)	47-2021: Brickmasons and Blockmasons (288)	53-7031: Dredge Operators (10)	53-4012: Locomotive Firers (12)	53-7032: Excavating and Loading Machine and Dragline Operators (479)
53-7041: Hoist and Winch Operators (14)	53-7071: Gas Compressor and Gas Pumping Station Operators (12)	53-4021: Railroad Brake, Signal, and Switch Operators (184)	53-6051: Transportation Inspectors (99)	47-5042: Mine Cutting and Channeling Machine Operators (127)	47-2022: Stonemasons (53)	53-7021: Crane and Tower Operators (172)	43-5011: Cargo and Freight Agents (134)	53-7033: Loading Machine Operators, Underground Mining (91)
47-5071: Roustabouts, Oil and Gas (109)	49-9012: Control and Valve Installers and Repairers, Except Mechanical Door (201)	49-9051: Electrical Power-Line Installers and Repairers (927)	49-9051: Electrical Power-Line Installers and Repairers (927)	47-5071: Roustabouts, Oil and Gas (109)	47-2221: Structural Iron and Steel Workers (257)	51-8013: Power Plant Operators (195)	53-4031: Railroad Conductors and Yardmasters (404)	53-7041: Hoist and Winch Operators (14)
47-2161: Plasterers and Stucco Masons (68)	53-7073: Wellhead Pumps (56)	49-2093: Electrical and Electronics Installers and Repairers, Transportation Equipment (83)	51-8099: Plant and System Operators, All Other (52)	47-2161: Plasterers and Stucco Masons (68)	51-4192: Layout Workers, Metal and Plastic (25)	51-8021: Stationary Engineers and Boiler Operators (154)	33-9093: Transportation Security Screeners (87)	53-4012: Locomotive Firers (12)
47-2081: Drywall and Ceiling Tile Installers (235)	51-8092: Gas Plant Operators (54)	47-4061: Rail-Track Laying and Maintenance Equipment Operators (101)	47-5013: Service Unit Operators, Oil, Gas, and Mining (114)	47-2044: Tile and Marble Setters (152)	51-8021: Stationary Engineers and Boiler Operators (154)	49-2093: Electrical and Electronics Installers and Repairers, Transportation Equipment (83)	53-7021: Crane and Tower Operators (172)	49-3021: Automotive Body and Related Repairers (724)
47-2044: Tile and Marble Setters (152)	47-4061: Rail-Track Laying and Maintenance Equipment Operators (101)	51-8093: Petroleum Pump System Operators, Refinery Operators, and Gaugers (68)	49-2095: Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (78)	53-7031: Dredge Operators (10)	49-2093: Electrical and Electronics Installers and Repairers, Transportation Equipment (83)	53-7033: Loading Machine Operators, Underground Mining (91)	53-4013: Rail Yard Engineers, Dinky Operators, and Hostlers (34)	49-9043: Maintenance Workers, Machinery (511)

Source: JobsEQ

## Appendix 5: Regional High School Graduation Rates

### 2015 High School Data

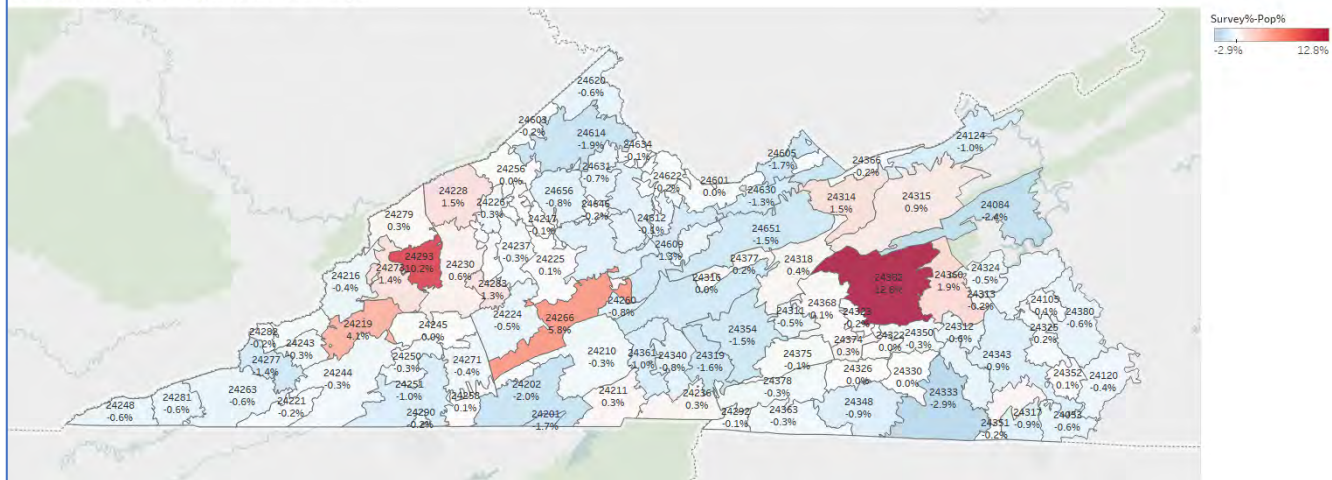
	Division Graduation Rate Percentage	State Graduation Rate	National Graduation Rate (2015)	Post Graduate Enrollment Percentage	# of Students Earning Industry Credentials	Total Credentials Earned	Division Enrollment
Bland	91	91	83	77	87	108	810
Buchanan	93			64	235	292	3004
Carroll	89			62	361	486	3902
Dickenson	83			68	209	266	2320
Grayson	90			66	174	427	1684
Lee	82			65	94	155	3297
Russell	94			65	508	676	4062
Scott	94			64	416	544	3817
Smyth	93			61	202	257	4594
Tazewell	84			74	575	808	6111
Washington	95			73	1044	1563	7346
Wise	92			66	543	719	6024
Wythe	91			77	489	691	4237
Bristol	89			70	211	293	2289
Galax	91			72	84	142	1390
Norton	95			72	78	87	835
Total				5310	7514	55722	

### 2016 High School Data

	Division Graduation Rate Percentage	State Graduation Rate	National Graduation Rate (2015)	Post Graduate Enrollment Percentage	# of Students Earning Industry Credentials	Total Credentials Earned	Division Enrollment
Bland	91	91	83	77	120	186	771
Buchanan	86			64	250	398	2922
Carroll	92			62	372	525	3836
Dickenson	90			68	291	363	2189
Grayson	91			66	127	327	1644
Lee	85			65	120	131	3262
Russell	93			65	526	739	3979
Scott	95			64	409	514	3732
Smyth	96			61	410	543	4505
Tazewell	92			74	660	876	5969
Washington	97			73	1078	1729	7264
Wise	94			66	606	889	5889
Wythe	92			77	502	883	4220
Bristol	90			70	233	283	2299
Galax	86			72	131	256	1322
Norton	98			72	73	74	789
Total				5908	8716	54592	

## Appendix 6: GO VA Region One Community Survey Results

Survey Percentage - Population Percentage



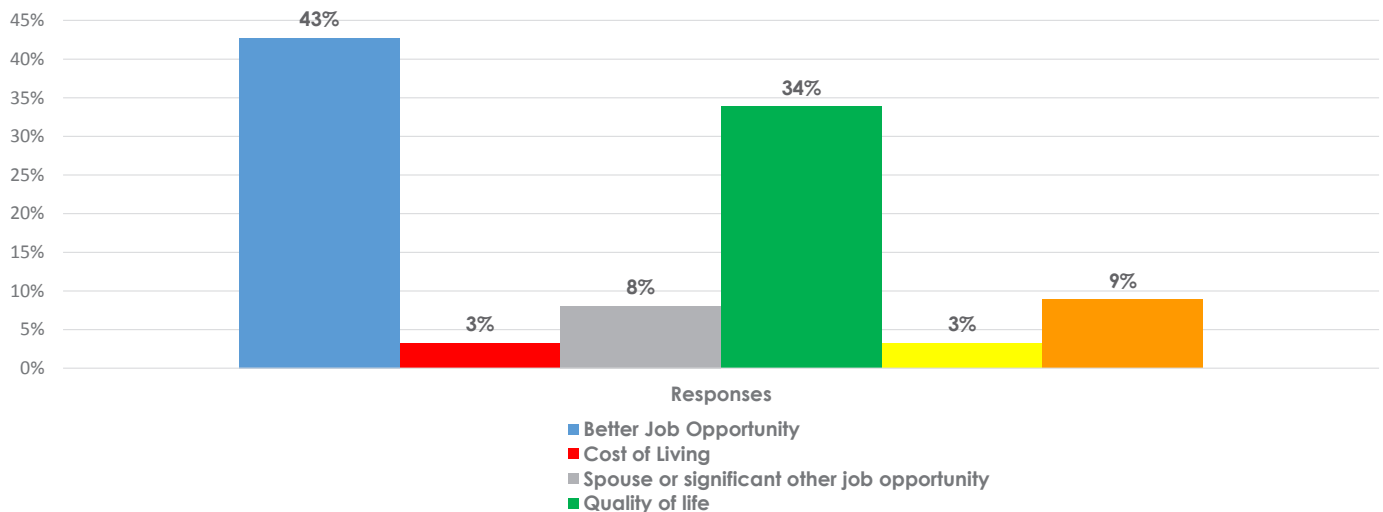
## GO VA Region One Stakeholders Survey Results

Q2. Are you currently considering re-locating out of the region?



## GO VA Region One Stakeholders Survey Results

Q3. If you answered yes, please indicate the primary reason you are considering relocation.



## Go Virginia Region One Stakeholders Survey Results

### Respondents Comments to Question 3

- ❖ Lack of quality healthcare and other services
- ❖ My husbands job may be ending so we are looking at the NC and Central VA for opportunities.
- ❖ Retirement
- ❖ Business opportunities
- ❖ I wish I could check more than one, but I think everything relates to quality of life. I am in the 30-35 age range, and I want breweries, shopping opportunities, fresh produce and meats, art, music– This region, specifically Wise and Norton do not fulfill my needs.
- ❖ Conservative culture with limited expectations
- ❖ Negative attitude of elected officials; backward thinking leadership; voters that vote against their economic interests. This all yields the opposite of a progressive, forward-thinking community.
- ❖ Retired couple looking for a warmer climate.
- ❖ There is very little growth in Wythe Co. We are so behind in almost every aspect of a community: infrastructure, school buildings, retail, and other growth opportunities in employment for middle class citizens.
- ❖ I have a wonderful job for a global energy company and I am fortunate to have the flexibility to work from a home office. I worry about the declining quality of life in this region without a diverse commerce strategy.
- ❖ Better business opportunities. Less social suppression.
- ❖ Better jobs, better economy, more activities for children.
- ❖ We need some progress in jobs and opportunities as well as more diversity in business and job opportunities.
- ❖ All of these are significantly a primary reason.
- ❖ Lack of sufficient opportunity to grow business.

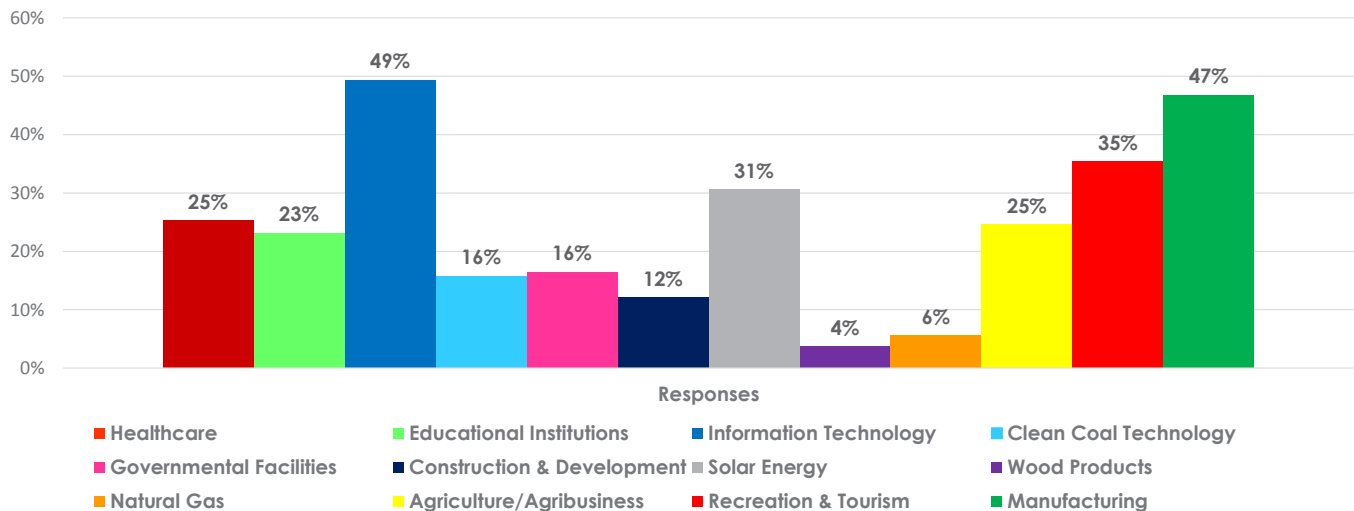
## GO Virginia Region One Stakeholders Survey Results

### Respondents Comments to Question 3 (continued)

- ❖ Bland is so far behind in multiple areas. Their citizens mean nothing to them compared to their ancient status quo. I would rather live in a county that provides residential zoning, city water and sewer, and high speed internet to if not all the majority.
- ❖ Bland county is behind in virtually every measurable sector.
- ❖ In the Richlands region there is not only a lack of job opportunities but there is also a lack of outdoor recreation. It's a shame to live in a town in the mountains and to not have access to hiking/biking within 30 minutes.
- ❖ Currently driving to Salem to work, spouse drives to Roanoke.
- ❖ If you need to shop, etc. you have to travel to get what you need. So why not just move there.
- ❖ The lack of local effective leadership to think in the long view, express it, and follow through.
- ❖ Better job opportunities for both my husband and myself, and better educational and extracurricular opportunities for my children.
- ❖ There is no income tax in Tennessee.
- ❖ Norton VA looks like a ghost town.
- ❖ The lack of options for us and our children leave little reason for us to stay.
- ❖ More educated population, better restaurants, better schools and resources.
- ❖ Region had a hard time accepting new ideas and adapting to change.
- ❖ Considering full-time RVing. Would like to have a permanent address w/no state income tax and lower/fewer personal property.

## GO VA Region One Stakeholders Survey Results

Q4. What type of industries should economic developers attract to the region to add higher-paying jobs? (Select up to 3)



## GO VA Region One Stakeholders Survey Results

### Respondents Comments to Question 4

- ❖ Amazon, Walmart, Target and/or other online businesses
- ❖ Example.....aquaculture as well as ag
- ❖ High tech production/installation/sales; drones, autonomous vehicles, alternative energy
- ❖ Our recreational capital has hardly been tapped. I envision SWVA becoming a second Great Smokey Mountains Park.
- ❖ Cyber and private businesses within niches, smaller footprint. Those recruiting millennials love outdoors.
- ❖ Enhance entrepreneurial opportunities in the region
- ❖ Tourism seems to be what's getting funded lately.
- ❖ There is a major need among the people here for better healthcare, so why not kill 2 birds by offering new high-paying jobs in the healthcare sector while also treating local patients? I also feel IT offers good high-paying jobs, and dedicated and trained Recreation and Tourism directors would help increase the quality of life in the region for everyone.
- ❖ ...all we CAN!!!!.....
- ❖ Arts and entertainment
- ❖ Cybersecurity, wind energy
- ❖ Industrial Hemp farming and manufacturing, research
- ❖ Non-timber forest grown products
- ❖ FAST internet, our area is as slow as third world countries, no company likes that.
- ❖ Data Centers, Distribution Centers, Regional Corporate Offices

## GO VA Region One Stakeholders Survey Results

### Respondents Comments to Question 4 (continued)

- ❖ Office professionals (web-based attorneys, professional consultants, architects), any firm that needs professional space but does not physical visits from customers.
- ❖ Agriculture would be 4<sup>th</sup> choice
- ❖ Agriculture not agribusiness. Agribusiness creates toxic waste. LIGHT manufacturing, again no toxic wastes.
- ❖ Transportation, local bus lines, trains, public transportation options
- ❖ Transportation; we are at the intersection of I-77 and I-81 and have the NS RR.
- ❖ Educational institutions- more specifically, trade schools. Also, we would do well to establish a market presence for low-cost energy efficient housing solutions.
- ❖ Any industry that provides good jobs.
- ❖ Materials Science/Chemical Engineering Research
- ❖ Retirement Communities – a “mountain Villages”
- ❖ Industries need to be accessible for the middle man that often has most difficult time to find employment in the area. Also, industry needs to look at present workforce and not those that will live outside our counties and commute here for our jobs.
- ❖ All of the above
- ❖ Anything, all we have currently is Walmart and McDonalds.
- ❖ Focus should be on R&D with patent portfolio, that over the long term is best for the greatest growth potential.
- ❖ There is no such thing as clean coal. The “clean coal” plant in MS was a \$3.4B loss.

## GO VA Region One Stakeholders Survey Results

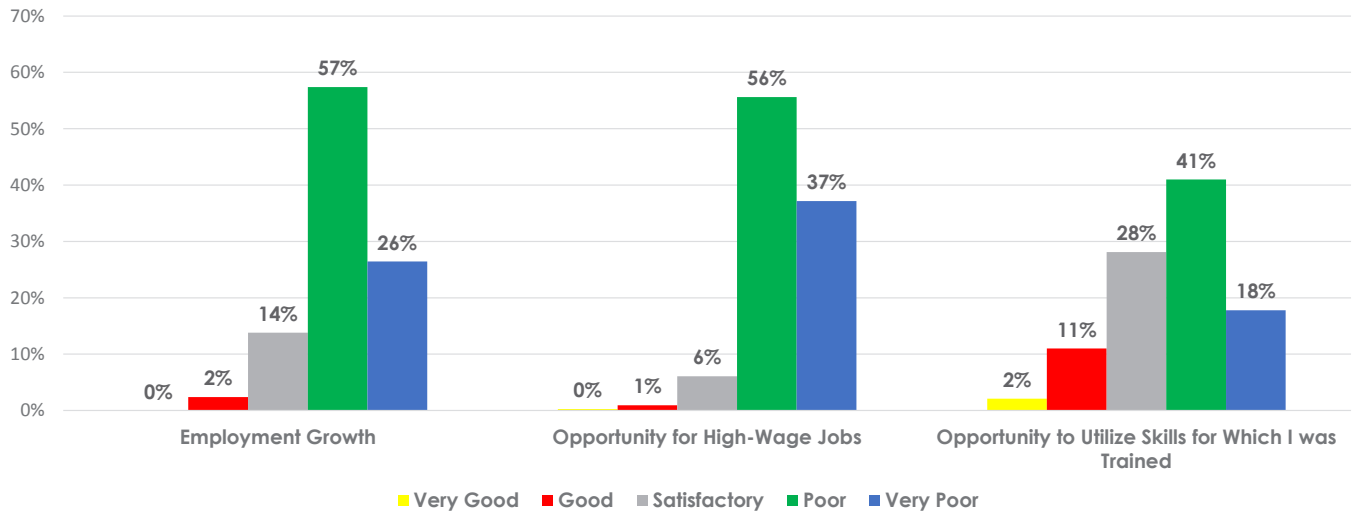
### Respondents Comments to Question 4 (continued)

- ❖ Wind Power, Hydro Power
- ❖ Much more emphasis should be placed on “economic gardening”, creating an environment conducive and supportive of our existing businesses. Too much emphasis is placed on recruiting firms to locate facilities here that we don’t have the workforce prepared for.
- ❖ Distribution facilities for on-line retail
- ❖ Tanger Outlet or similar shopping experience. Nearest shopping is one hour away in either direction.
- ❖ Anything supporting the tourism industry, (i.e. restaurants and breweries) would make life much better.
- ❖ Why would we limit ourselves?
- ❖ All the above except more education when they will leave for jobs once educated if we have none.
- ❖ Arts
- ❖ Industrial hemp/hemp manufacturing
- ❖ Coal to Graphene, Utility scale 50 MWpv, airborne and wind turbines, hydroelectric pump storage with modernization of the regional grid; data centers so as not to concentrate on I-66; unmanned systems R&D; hemp farms; highly secure marijuana greenhouses
- ❖ Including food and beverage industry under selected items; also believe there could be a healthy/connection with agriculture and recreation and tourism.



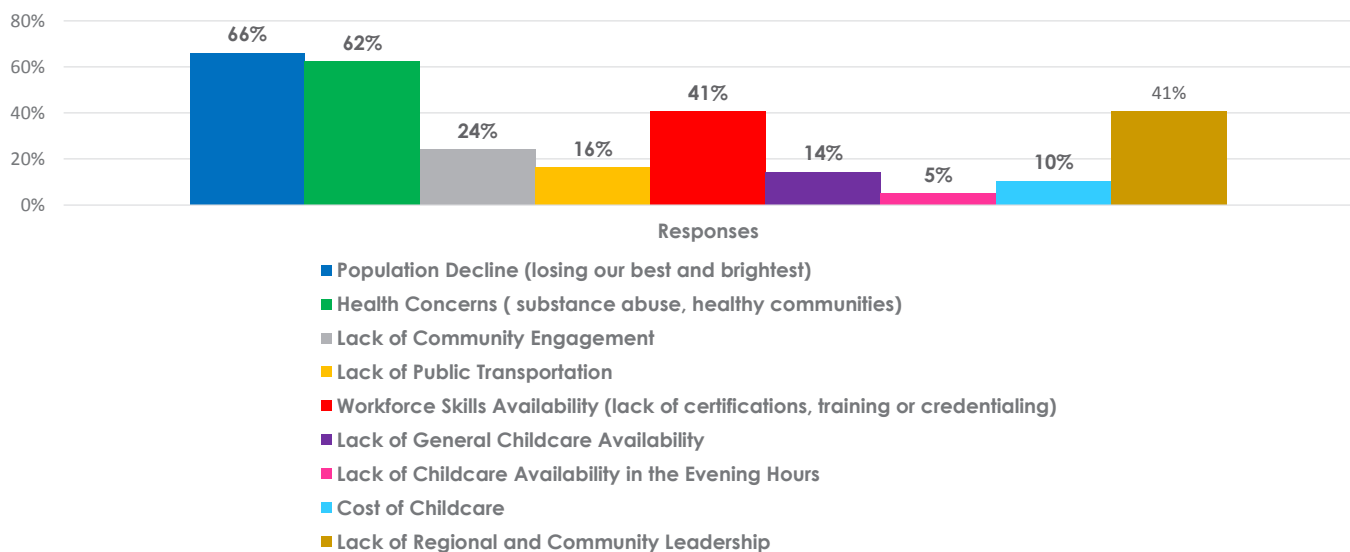
## GO VA Region One Stakeholders Survey Results

Q5. How would you rate the following current economic conditions of the region?



## GO VA Region One Stakeholders Survey Results

Q6. What key challenges do you feel your community must overcome to achieve economic advancement? (Choose 3)



## GO VA Region One Stakeholders Survey Results

### Other Responses to Key Challenges – Question 6

- ❖ Old and staid economic leadership that is not comfortable in dealing with 21<sup>st</sup> century world. Many just hanging on to their jobs.
- ❖ Leadership which is more and more exposed as lax and remiss in tending to the people's business and the people's welfare: ITEM, the Buchanan bequest to the county. Our forbears articulated a nice sarcasm about the real human tendency: "Don't worry, there'll be a man along riding a mule to do that for you!"
- ❖ There are no jobs for low skilled labor but fast food.
- ❖ The number one key issue here is a general lack of regional and community leadership. Too many "old white men" are responsible for a region that does not look like them, and because of that businesses are closing and people are moving. Too often, leadership does not consider the wants or needs of the residents. There is no move toward growth or change. We are stagnant. Every other issue we have is due to the leadership in this region.
- ❖ Lack of social entertainment
- ❖ ...some of all, above, likely....
- ❖ Lack of better attitude and open mindedness towards welcoming anything new and unfamiliar; Racism
- ❖ Lack of political power and lack of political support for economic development in rural areas
- ❖ Old, crumbling school. Board of Supervisors that thinks it's still in the 1950s. Artificially low taxes. Low services. Despair in population.
- ❖ Need highways desperately
- ❖ Lack of marketing as a multi-state region, not small entities
- ❖ Lack of large industrial/business sites due to mountainous terrain.

## GO VA Region One Stakeholders Survey Results

### Other Responses to Key Challenges – Question 6 (Continued)

- ❖ Nothing to attract millennials-entertainment, recreation such a bowling, skating, etc., very few places to shop .
- ❖ Lack of infrastructure (broadband, roads)
- ❖ Federal Government Regulation
- ❖ Local government focus on retail and food service, due to tax revenues and manufacturing, which is part of the region's past.
- ❖ Schools need to be updated. Academically they seem to be doing ok, but the school infrastructure is embarrassing. They are stuck in the 60s. There is no focus or vision defined in Wythe County for the citizens to stand behind. Everyone seems to be out for their own agenda. We need better leadership to unite us in a more progressive forward thinking goal for economic development.
- ❖ Lack of respect for tourism and the land. We have incredible opportunity for recreation and tourism, and it is not being taken advantage of!
- ❖ Public transportation is the biggest barrier to employment in Southwest VA.
- ❖ Work ethic of the lower socio-economic half of the population, preparation of most public school students.
- ❖ Workforce – soft skills
- ❖ Lack of broadband internet access outside of population centers.
- ❖ While all of these areas could use improvement, the overwhelming economic chokehold that has been repeatedly exercised by elder leadership has cost Wythe County many great opportunities.

## GO VA Region One Stakeholders Survey Results

### Other Responses to Key Challenges – Question 6 (Continued)

- ❖ “Band Wagoning” (putting all of our energy into collectively chasing a new “silver bullet” idea or industry as a driver of change for a few months, then dropping it as soon as another hot topic or industry comes along. As a result, we continually shift resources and effort but never get any sustained work or growth done).
- ❖ Education!! (#1)
- ❖ Education PK-12, greater integration and innovation of technology and national standards to be competitive and appealing to families looking to move to the area.
- ❖ Poor public education; limited cultural opportunities
- ❖ Better educated people to attract higher technology jobs
- ❖ Poor education, select group of people making all the decisions that have lots of money.
- ❖ I feel our community is ripe for responsible, progressive growth.
- ❖ The growing gap between urbanization and rural communities
- ❖ Funding and professional training for effective regional and community leadership when it comes to preparing youth to meet the economic challenges of the 21<sup>st</sup> century and in particular entrepreneurship for youth and brining school districts up to speed with the needs of industry both today and tomorrow.
- ❖ Lack of adequate transportation highways
- ❖ We need leadership that has a new vision and not stuck in the same old shell building mentality.

## GO VA Region One Stakeholders Survey Results

### Other Responses to Key Challenges – Question 6 (Continued)

- ❖ Millennials prefer transportation and city or town type living. Need Uber like transport, coffee shops, bars, etc.
- ❖ Community engagement issue is related to cooperation among small communities.
- ❖ Education PK-12, greater integration and innovation of technology and national standards to be competitive and appealing to families looking to move to the area.
- ❖ We have so-so regional public transit but it's under utilized.
- ❖ Town and county officials need to grow up and accept that today is the future. That we don't live in the past 50+ years ago. They need to allow big business to come into their areas.
- ❖ Lack of customer service skills, soft skills—current businesses are not successful because of lack of fundamental skills.
- ❖ Negative image of SW Virginia and lack of good jobs
- ❖ Outdated technology (cell phone dead zones, unreliable broadband); the public should have free access to the newest technology and training in libraries, employment services, and adult education classes.
- ❖ Appreciation for diversity
- ❖ No opportunities
- ❖ Affordable education
- ❖ Poor education system
- ❖ Without civic leaders leading the way, nothing will get done.

## GO VA Region One Stakeholders Survey Results

### Other Responses to Key Challenges – Question 6 (Continued)

- ❖ Lack of public support for local business, terrible bureaucracy for new businesses and restaurants
- ❖ An entrenched economic development system that has become its own self-sustaining and self-defeating industry
- ❖ NEED better ROADS
- ❖ Need to attract new high technology jobs not the same old thing
- ❖ Lack of high speed internet in most areas of the region (or limited to one option)
- ❖ Prescription drug problem
- ❖ I feel the area of Big Stone Gap wants to stay under to access federal help so they do not encourage more businesses. Just an opinion.
- ❖ Need progressive thinking. Our region suffers from the worst kind of favoritism and unfairness.
- ❖ Attracting companies and businesses to move into the region
- ❖ Workforce development/skills lacking
- ❖ Need a way to have optimal collaboration between multiple economic development entities.
- ❖ Lack of county wide trash pickup, water, leash law and sewer

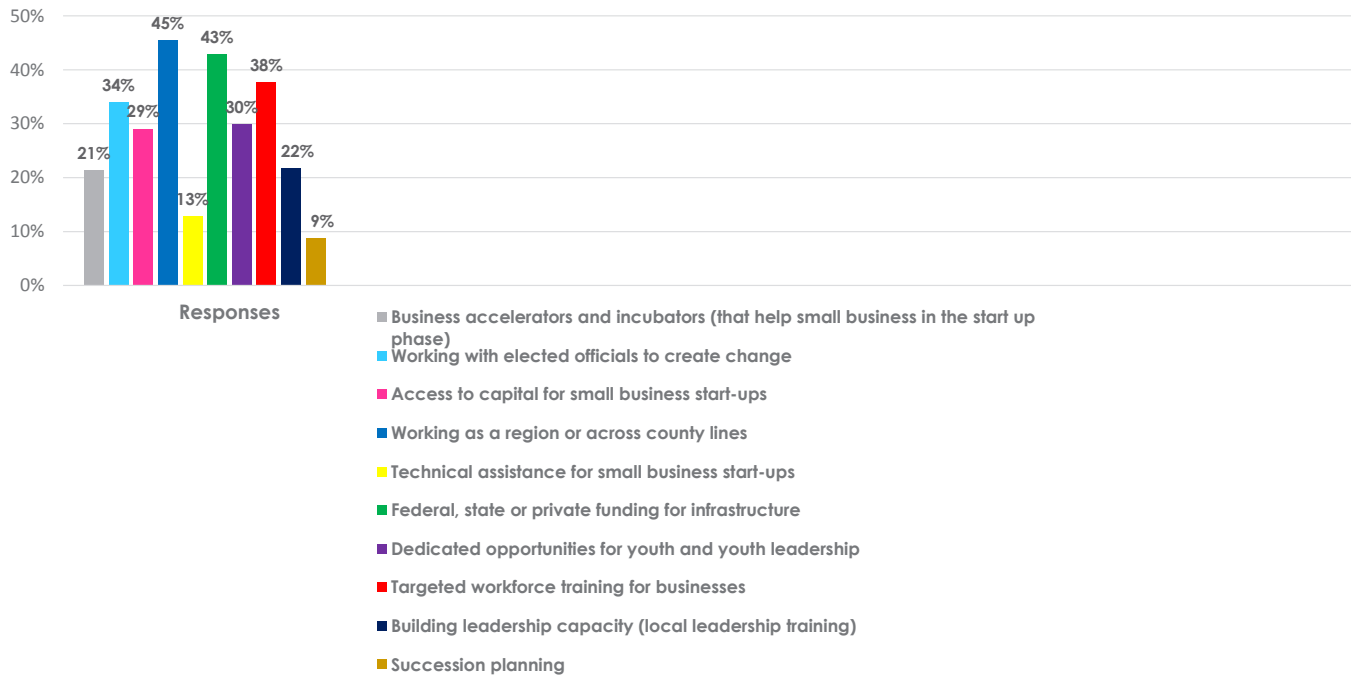
## GO VA Region One Stakeholders Survey Results

Q7. What are the most important things that the Region One Council should consider to help the region address economic challenges?



## GO VA Region One Stakeholders Survey Results

Q8. What are the most important tools and resources to build economic growth? (Select up to 3)



## GO VA Region One Stakeholders Survey Results

### Other Responses to Building Economic Growth - Question 8

- ❖ Identify public works projects in infrastructure that county government can support and find funds for.
- ❖ I think capital is a really important piece that needs to be discussed; Danville VA has a regional foundation they manage themselves that allows for small community grants—I would love to see something like that in this region, because it also encourages people in the community to work toward change.
- ❖ I'm not an economist but I know several of these tools have been employed before with little to no positive results. I'm not sure what the best tools are at this time.
- ❖ ....some of ALL, above, probably...
- ❖ Availability of more skill based jobs that rely on quality education and the emphasis of knowledge.
- ❖ A shared understanding of the purpose, the work, and timelines
- ❖ New leaders in each area. The same people get elected or the same people are the ones put in leadership positions. We need people who can think differently and are visionaries. The same people think the same way and expect the same results as when we had coal.
- ❖ Communication with the public about opportunities and improvements
- ❖ Area recruitment of manufacturing
- ❖ Recruitment of established companies looking to relocate or expand
- ❖ Lack of broadband is crazy, especially in Virginia.
- ❖ The most crucial tools or resources are your people. Establish a non-subsidized program that will cultivate a more economically stable workforce. We need a new approach... one that provides more than just a temporary solution for the permanent challenge of economic growth.
- ❖ New schools; more ways to shop instead of leaving town; visitors will stop if more was available

## GO VA Region One Stakeholders Survey Results

### Other Responses to Building Economic Growth – Question 8 (continued)

- ❖ Support of manufacturers currently located in the region
- ❖ Opportunities for youth needs to include entrepreneurship for youth
- ❖ Consider pursuing “economic engines” throughout the region, such as colleges, medical centers, technology centers, etc.
- ❖ Local real estate owners are similar slum lords with people who move in and are new to the area. You cannot think educated people are going to move to the area and pay big sums for dated houses that have been sitting empty. You must have good schools and appropriate housing.
- ❖ Raise taxes at inter-state exits for revenue, we all pay it when we travel.
- ❖ A lot of people will tell you that child care is a problem. I recommend we DO NOT build child care infrastructure, it won't make a statistical difference on our workforce. I have studied this for over 25 years.
- ❖ We know coal is dead. But what steps will turn the economy around quickly?
- ❖ Recommend reviewing a recent study: “Access to Capital for Small and Mid-Sized Scale-Up Companies in Hampton Roads”. Could easily have been SWVA.
- ❖ Develop a shared vision for our region.
- ❖ Small business start ups are great but cannot flourish in the midst of population plagued with public health and economic crisis.
- ❖ YOU NEED LARGE EMPLOYERS!!! ATTRACT HIGH PAYING JOBS
- ❖ Investing in early education and youth

## GO VA Region One Stakeholders Survey Results

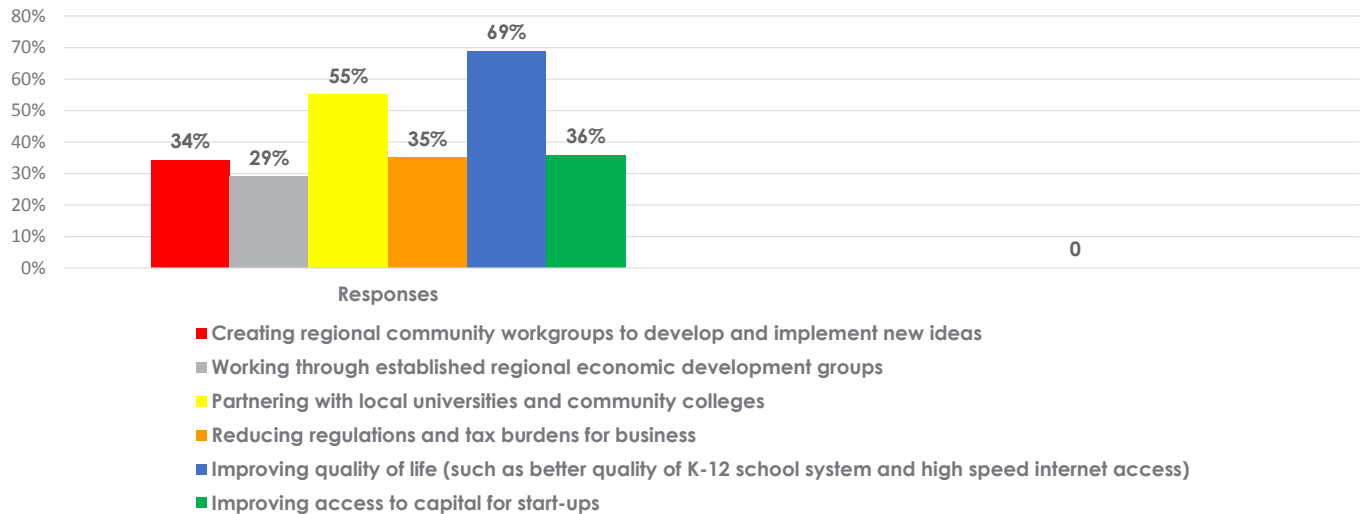
### Other Responses to Building Economic Growth – Question 8 (continued)

- ❖ Involve young people, we are the future! Organize focus groups with young people, allow them to serve on committees, and carefully listen to what they have to say. I would love to share my ideas, my email address is [lsb2t@uvawise.edu](mailto:lsb2t@uvawise.edu).
- ❖ Widening I-81, expanded rail service, agri-business development, high speed internet for rural areas
- ❖ ALL the above!
- ❖ Develop conduit to NoVa capital and intellectual capital sources
- ❖ Manufacturing
- ❖ Why put resources in small (mom-pop) business along main streets. Every time one opens another closes.
- ❖ Attitude.



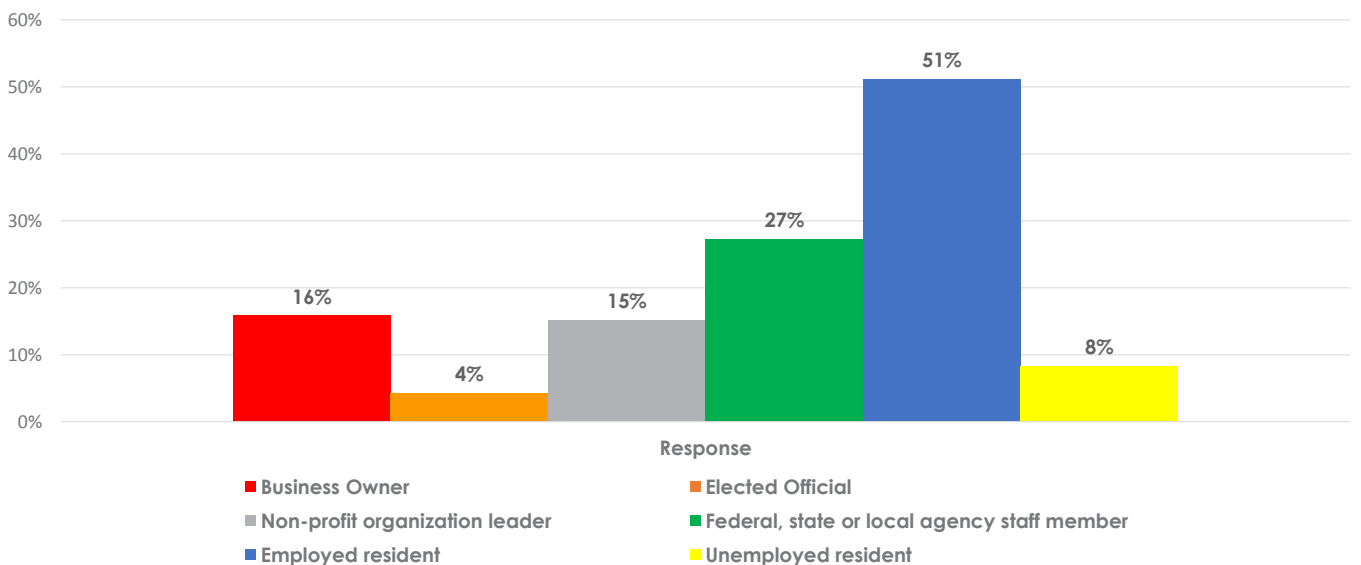
## GO VA Region One Stakeholders Survey Results

Q9. What are the most effective ways to create more jobs, raise wages, and diversify the economy in the region?



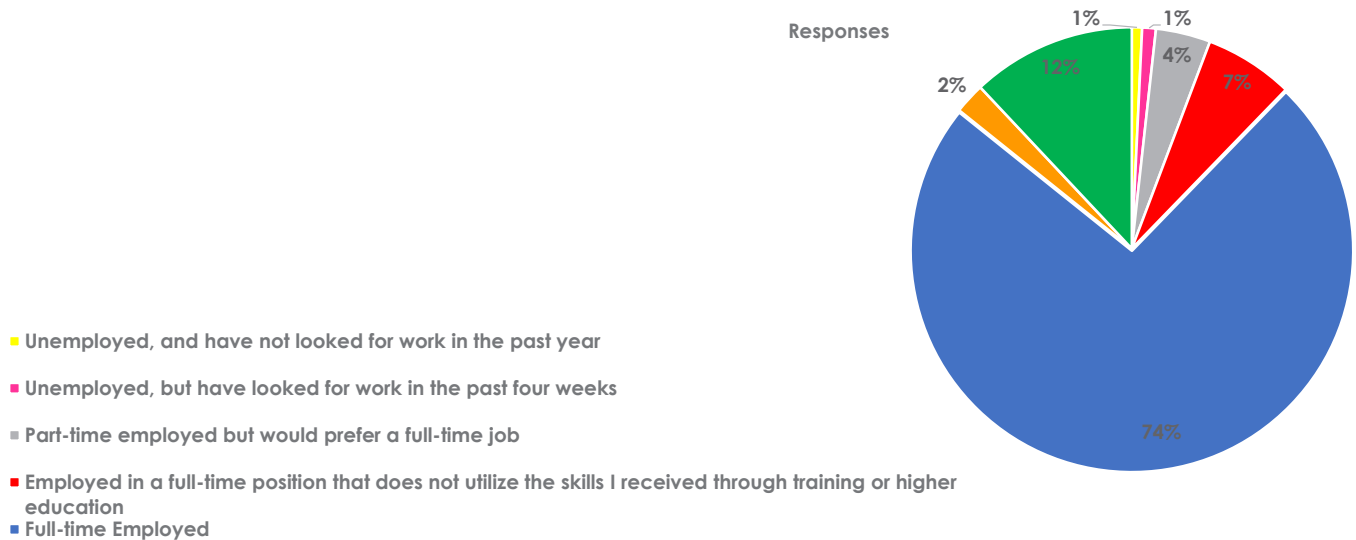
## GO VA Region One Stakeholders Survey Results

Q10. What affiliations best describe you?



## GO VA Region One Stakeholders Survey Results

Q11. Please choose what best describes your current employment status.



## GO VA Region One Stakeholders Survey Results

### Other Responses to Current Employment Status – Question 11

- ❖ I am not in my dream job, but am also not in my dream region. I moved here for my spouse's job and am very luck to also have found a full-time position. But I am dissatisfied more days than I am satisfied.
- ❖ 2 part-time positions without insurance
- ❖ 2 part-time jobs (60 hour/week + full-time university student
- ❖ #9 question doesn't apply to a retiree
- ❖ Entrepreneur wanting to establish new businesses and viable economic opportunities for myself and as many others as possible in my area.
- ❖ Underemployed
- ❖ But working part-time
- ❖ Retired but working part-time
- ❖ Full-time employee but travel 100 miles per day to employer
- ❖ Retired, but run a small business
- ❖ Have also worked 3 jobs for 1 year and 2 jobs for 6 years as a single parent with child in college/grad school
- ❖ Semi-retired, work part-time, love it
- ❖ Full-time employed and full-time student
- ❖ Semi-retired business owner/developer

## GO VA Region One Stakeholders Survey Results

### Other Responses to Current Employment Status – Question 11 (continued)

- ❖ Self employed
- ❖ Stay at home mom
- ❖ Own and employed in my own business
- ❖ Part-time
- ❖ Self-employed
- ❖ Full-time, recently employed outside of our area
- ❖ Small business owner
- ❖ Driving 75 miles to work. Cannot sell my house to move closer to work due to lack of new professionals moving to town.
- ❖ N/A
- ❖ I have to work out of town to get paid what I should.
- ❖ Business owner
- ❖ CEO of Micronic Technologies
- ❖ Working part-time in education
- ❖ Disabled
- ❖ Employed full-time

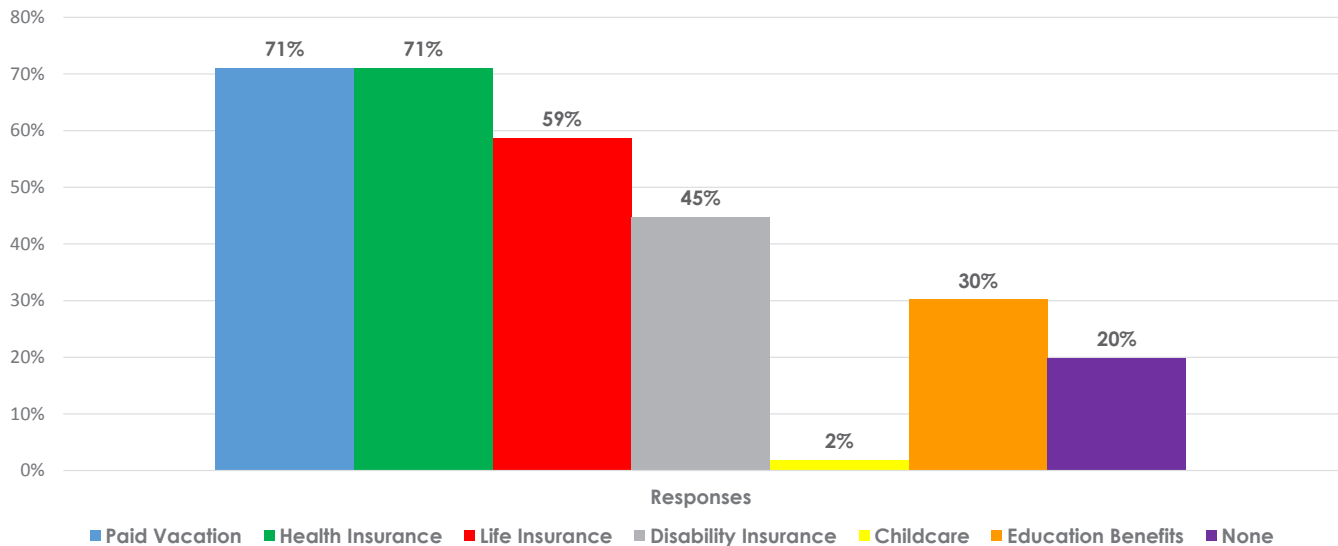
## GO VA Region One Stakeholders Survey Results

### Other Responses to Current Employment Status – Question 11 (continued)

- ❖ Full-time student, mother, looking for part-time work to pay for education and provide for needs of children.
- ❖ Struggling business owner
- ❖ Full-time in shrinking market..
- ❖ I am a cosmetologist, with a degree for pharmacy technician.
- ❖ Full-time job but part time hours thanks to ACA
- ❖ Small business owner with part-time jobs to sustain start up capital
- ❖ Full-time employed but have to work part-time jobs to make a living wage
- ❖ Disabled Vet
- ❖ Grandmother that is providing daycare for grandchild
- ❖ Management of large manufacturing facility
- ❖ Retired, own consulting business, still working
- ❖ Retired

## GO VA Region One Stakeholders Survey Results

Q12. What benefits does your work provide you?



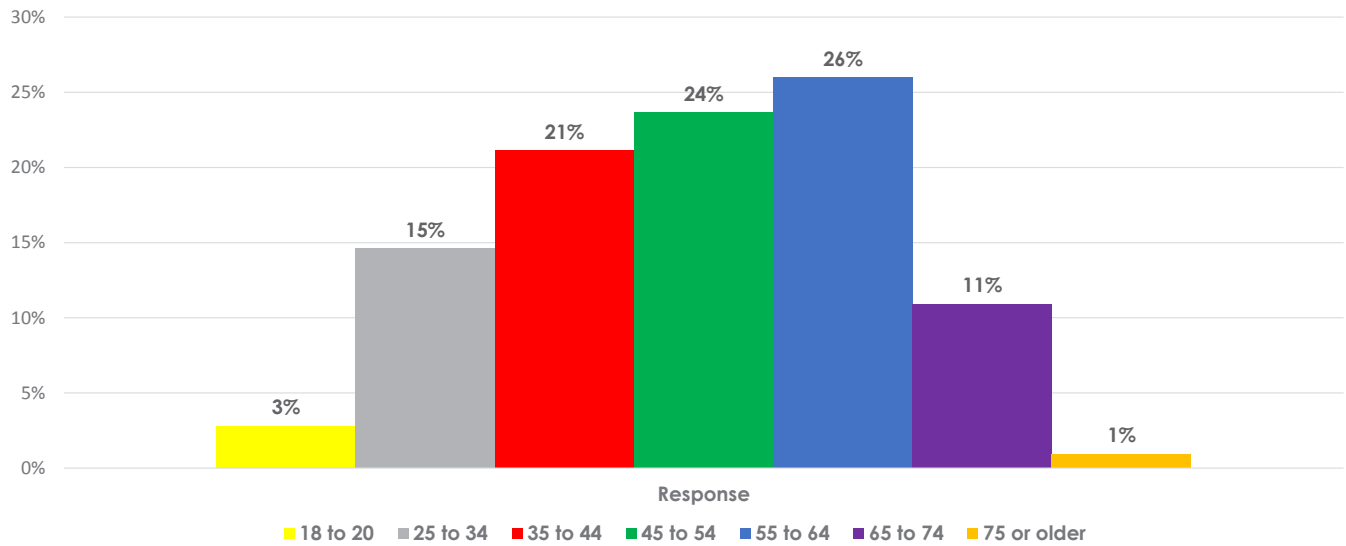
## GO VA Region One Stakeholders Survey Results

Q13. What is your zip code?

ZIP CODE	TOWN	TOTAL RESPONDENTS	RESPONDENTS PERCENT OF TOTAL
24382	Wytheville	65	15%
24293	Wise	57	13%
24210, 24211, 24212	Abingdon	36	8%
24266	Lebanon	31	7%
24219	Big Stone Gap	28	7%
24201, 24202	Bristol	21	5%
24273	Norton	13	3%
24360	Max Meadows	13	3%
24228	Clintwood	12	3%
24230	Coeburn	12	3%
24354	Marion	8	2%
24279	Pound	7	2%

## GO VA Region One Stakeholders Survey Results

Q14. What is your age?



## Appendix 7: Regional Conversations Recap

### GO Virginia: Region One Growth & Diversification Plan

#### Executive Summary of Community Meetings

August 2 & 3, 2017



#### Executive Summary

##### Background

Three community meetings were held on August 2<sup>nd</sup> and 3<sup>rd</sup>, 2017 in Duffield, Lebanon, and Marion, Virginia. The purpose of the meetings was to identify Southwest Virginia's regional strengths and opportunities for economic growth for the GO Virginia Region One Growth and Diversification Plan. Ideas and priorities were shared at each of the three community meetings, with separate summaries available for each meeting available at this [link](#)<sup>28</sup>. The top goals and priorities from each meeting were then combined after the meetings; **the top prioritized goals** from the three community meetings include:

1. Strengthen existing leadership and foster next generation leadership.
2. Cultivate entrepreneurs, and support and diversify existing businesses.
3. Develop regional collaboration for workforce and education (including K-12), and expand, market and grow regional educational resources.
4. Leverage broadband infrastructure to promote the ability to work remotely and grow information technology (IT) infrastructure and technology hubs.
5. Create a new identity for the region as a "culture of wellness", and promote the region's high quality of life, assets and amenities through marketing and telling positive stories of the region.
6. Coordinate and focus workforce programs to align with industry and economic development targets.

GO Virginia Region One is composed of 13 counties and three cities in Southwest Virginia (SWVA). The Virginia Initiative for Growth and Opportunity in Each Region (GO Virginia) was initiated by Virginia's senior business leaders to foster private-sector growth and job creation through state incentives for regional collaboration by business, education, and government. Recognizing the effect of deep federal budget cuts on a Virginia economy that is overly dependent on public-sector jobs, they launched the GO Virginia campaign to work for regional cooperation on private-sector growth, job creation, and career readiness. In 2016, leaders in business and state government came together to create the GO Virginia legislative package. Now, the GO Virginia initiative is being implemented through legislation ([HB834](#) / [SB449](#)) and through

28. <https://www.uvawise.edu/uva-wise/administration-services/office-economic-development/go-virginia-region-one-council/>



## GO VA Region One – Growth & Diversification Plan (August, 2017)

The GO Virginia Coalition provides support for the GO Virginia Board's efforts to create more higher paying jobs through incentivized collaboration and out of state investment that diversifies and strengthens the economy in every region of the Commonwealth. The coalition is comprised of business and community leaders, partners in education and government, and interested Virginians from across the Commonwealth who support regional cooperation to enhance economic and workforce development. Bipartisan and business-led, the coalition supports state incentives to encourage collaboration among business, education, and government in each region, providing a framework for implementation of the private sector-focused growth strategies. For more information about GO Virginia, please visit [www.govirginia.org](http://www.govirginia.org).

### Meeting Process and Highlights

#### Meeting Opening

Three community meetings were held in Duffield, Lebanon, and Marion on August 2nd and 3rd 2017. During each of the meetings, Shannon Blevins of UVa-Wise (the University of Virginia's College at Wise) welcomed participants. After introductions, a Region One councilmember shared the background and purpose of GO Virginia at each meeting. Christine Gyovai, a facilitator with Dialogue + Design Associates, reviewed the meeting, agenda and developed meeting guidelines with participants including having cell phones on silent, brevity is welcome, explain acronyms the first time they are used, and all ideas are welcome.

In addition, in the Lebanon and Marion community meetings, participants shared one word hopes for SWVA which included:

*Growth, prosperity, excitement, development, tangentially, collaboration, opportunities, potential, thriving, education, partnership, full employment, diversity, reinvent, sustainability, tourism, support, success, technology, health care, robust, jobs, progress, advancement, innovation, vitality, clairvoyance, beauty, positive image, progressive, success, regional, cross-pollination, increased tourism, reinvent, business opportunity and retain, diversification, green, safety, progress, creative, technology, pride, renaissance, stability, music, cyber, and joy*

Shannon Blevins then presented the findings of a regional survey, which had over 500 responses, as well as the initial quantitative economic analysis findings underway by Chmura Economics and Analytics. The presentation was also shared as a handout. The handout also highlighted the initial findings as well as seven Action Teams, which emerged from the 2016 Economic Forum at UVa-Wise around key goal areas.

#### Small Group Discussion

During each of the meetings, after the presentation participants divided into small groups to share and prioritize ideas around these key questions (separate meeting summaries for each community meeting are available at this [link<sup>29</sup>](https://www.uvawise.edu/uva-wise/administration-services/office-economic-development/go-virginia-region-one-council/)):

- What are SWVA's top strengths and opportunities for economic growth as a region?
  - o Of the list, what are the most important ideas or what is missing?
- How can these opportunities be realized or created in SWVA?
  - o Who needs to be involved?

29. <https://www.uvawise.edu/uva-wise/administration-services/office-economic-development/go-virginia-region-one-council/>

## GO VA Region One – Growth & Diversification Plan (August, 2017)

- o How can these ideas be made a reality?

During meetings 2 and 3, the highlights of the top five prioritized ideas from the previous meeting(s) were shared with the group in advance of the small group discussions. Meeting attendees were encouraged to build on the top ideas and to identify new ideas as well during the small group discussions. Participants were provided a handout with the questions that are listed above with space to reply to each question. Each of the small groups identified a facilitator and reporter. Then, the group members took turns sharing their ideas and priorities. Next, the small groups discussed these ideas, and then created a prioritized list of top ideas. Participants shared their top ideas with the whole group after the large group reconvened.

During each of the meetings after the small groups shared their ideas, the top ideas of all the small groups were collectively prioritized in one of two ways. In the first meeting in Duffield, ideas were prioritized by raising 1, 2 or 3 fingers to indicate the level of support for an idea in a test for consensus. Three fingers stood for full support, two fingers indicated that a participant supported the idea but might have some questions or concerns, and one finger meant that the participant had too many questions or concerns to support the idea. The rankings of the ideas were annotated high (H, H+, H-), medium (M, M+, M-), or low support (L, L+, L-). This allowed all the ideas to be heard and organized according to group priority with Christine tallying the votes in the large group. In the second and third community meetings in Lebanon and Marion, the entire group prioritized the ideas by voting with four sticky dots per person, which were recorded with a tally of dots per idea to determine top ideas for each meeting.

### Top Idea Synthesis

The top ideas from each meeting are summarized below; however, several additional ideas were developed that are available in the full meeting summary for each meeting (which are available at the link above). There was significant overlap between the ideas that emerged during each of the community meetings. The top grouped and prioritized ideas, or goal areas, are synthesized and included below after the individual summaries of collective meeting priorities, which are listed below by the name of the meeting location.

#### DUFFIELD

- 1. Strengthen existing and next generation leadership to help realize a compelling vision for the region. (H+)**
  - a. Strengthen existing leaders and foster opportunities for leaders to create and communicate a compelling vision for the future of the region with community members.
  - b. Foster the next generation of leadership.
- 2. Engage and grow existing businesses, and grow the manufacturing base. (H+)**
  - a. Assess market trends and identify where existing businesses could expand and new businesses emerge, taking advantage of the technical skillset of unemployed or underemployed miners.
  - b. Develop a business-to-business network to identify input or support needs that can be sourced locally to build the regional economy.
  - c. Create an entrepreneurial ecosystem – create an environment with resources for new entrepreneurs and emerging businesses, including access to capital.
  - d. Develop opportunities for smaller companies to partner with larger companies to meet and address the needs of one another.

## GO VA Region One – Growth & Diversification Plan (August, 2017)

### **3. Expand and market educational opportunities. (H+)**

- a. Market SWVA community colleges, UVa-Wise, and specialty schools on a regional, state and national level.
  - i. Expand educational offerings and programs to include graduate-level studies and to focus on the trades.
- b. Grow youth and education programs that prepare students for regional career opportunities, including a focus on the trades and workforce development.

### **4. Grow information technology (IT) technology hubs; attract and support millennials. (H+)**

- a. Expand IT training opportunities.
- b. Promote quality of life factors to attract millennials.
- c. Include renewable energy opportunities to attract large companies.

### **5. Grow health and wellness as economic drivers. (H+)**

- a. Promote, grow and market a high quality of life of SWVA.
- b. Tell and share the story of the SWVA's culture in a positive way.
- c. Promote the strength of SWVA culture and people to employers.
  - i. Promote regional outdoor recreation assets.

## LEBANON

### **6. Leverage broadband infrastructure to promote the ability to work remotely, and introduce youth to technology operations early. 14 votes**

- a. Promote the ability to work remotely with creating desirable communities and available broadband.
- b. Develop an inventory of "things to do" that would be attractive to young professionals. This could be marketed as: "Bring your own job with you and move to SWVA."
- c. Develop funding and resources for K-12 grades in schools to hire a dedicated technology teacher (computer science).
- d. Promote openings that are available today and emphasize the available salaries.

### **7. Foster regional collaboration for workforce and education of all ages and stages, including workforce rehabilitation. 13 votes**

- a. Focus on K-12 opportunities including placing an emphasis on the trades.
- b. Develop partnerships to work with industrial recruitment and coordinate with educational opportunities creating a hand-in-hand pipeline for job recruitment.

### **8. Identify, cultivate, and retain next generation of leadership. 9 votes**

- a. Cultivate leadership and mentoring opportunities with community members and local business leaders and students in elementary school through college, and engage them in the community.
  - i. Focus on opportunities to develop student leaders.
- b. Develop training and resources such as a regional leadership academy and celebrating successes.

### **9. Diversify existing businesses and create adaptive manufacturing that responds to market needs. 9 votes**

- a. Determine regional manufacturing needs and connect with new business and contracting opportunities.
- b. Match job training to skilled workers.
- c. Identify workforce talents of the existing workforce and provide opportunities for training and advancement to aid in retention of employees.

### **10. Create a new identity for the region as a "culture of wellness," beginning with agriculture and then to value-added manufacturing. 8 votes**

- a. Connect farmers markets to grocers, school systems, hotels, hospitals, and food banks (gleaning "seconds" or produce that is still viable but might be blemished

## GO VA Region One – Growth & Diversification Plan (August, 2017)

- and unable to be sold).
- b. Leverage new opportunities for cattle, heritage breeds, and legacy farms, and connect to new markets.
- c. Recruit farm supply and packaging businesses into the area.
- d. Explore new ways of growing things and niche markets like hydroponics, maple syrup, heritage breeds, and tilapia.

### MARION

#### **11. Coordinate and focus workforce programs to align with industry and economic development targets. 18 votes**

- a. Build credentials and certifications that are transferable between industries and geographic areas.
- b. Leverage the Virginia Economic Development Partnership (VEDP) strategic plan by targeting industry clusters.
- c. Establish connection with Work Ready Communities (WRC) to help businesses navigate programs and organize workforce needs.
  - i. Identify one WRC point of contact to help businesses navigate different programs. Focus on serving the “business”, not the educational institution.
- d. Develop industry clusters that can cross county and regulatory boundaries to provide support for specific industries such as equipment manufacturing, electrical equipment, and IT and cyber.
  - i. Engage economic development professionals.

#### **12. Grow educational offerings and pathways. 13 votes**

- a. Focus on youth in education and establish a pathway from kindergarten to career for workforce development.
- b. Focus on opportunities to educate the parents of children – combine school efforts with family support opportunities.
- c. Emphasize or expand trade and soft skills (such as communication and collaboration) in education.

#### **13. Cultivate entrepreneurship and support existing businesses. 12 votes**

- a. Identify the needs for entrepreneurs.
- b. Identify what is currently being done and who is doing it.
- c. Create capital by identifying funding and leveraging existing resources.
- d. Develop a prepared workforce.

#### **14. Foster agricultural and natural resources growth, as well as healthcare development. 8 votes**

- a. Focus on health care development as these jobs can be high paying jobs as considered “low hanging fruit”.
- b. Grow awareness of and foster education in food systems, experiential food related businesses for a span of ages (K-gray) through activities such as field trips, train and the trainer opportunities.
- c. Create an “ecosystem” that illuminates opportunities, and change the perception that college degrees only yield more money and jobs – the trades can be lucrative.
- d. Create partnerships and symbiotic relationships that link industry with farms to manufacturing as well as to health and well fare.

#### **15. Create a digital ambassador program that creates a positive regional image. 8 votes**

- a. Create a network of people that are trained to share announcements built upon a consistent media theme and content, posting positive stories to counteract negative stories to build community support and excitement around regional assets.
- b. Designate one person to facilitate the process.
- c. Leverage business contacts nationally and globally, and target millennials and industries that value quality of life.
- d. Educate community members in general of the region's assets such as outdoor recreation, broadband, water, energy, land and labor.

### COMBINED REGIONAL GOALS

Meeting facilitators and organizers synthesized overlapping goals across the three community meetings into the list of prioritized goals below. Following the list of prioritized goals that are a synthesis of specific next steps and action ideas, combined by each goal area, from across the three community meetings (which may also be found on page one of this summary).

- 1. Strengthen existing leadership and foster next generation leadership.**  
(#1 and #8 from the list above.)
- 2. Cultivate entrepreneurs, and support and diversify existing businesses.**  
(#2, #9, and #13 from the list above.)
- 3. Develop regional collaboration for workforce and education (including K-12), and expand, market and grow regional educational resources.**  
(#3, #7, and #12 from the list above.)
- 4. Leverage broadband infrastructure to promote the ability to work remotely and grow information technology (IT) infrastructure and technology hubs.**  
(#4 and #6 from the list above.)
- 5. Create a new identity for the region as a “culture of wellness”, and promote the region's high quality of life, assets and amenities through marketing and telling positive stories of the region.**  
(#5, #10, #14, and #15 from the list above.)
- 6. Coordinate and focus workforce programs to align with industry and economic development targets.**  
(#11 from the list above.)

#### **1. Strengthen existing leadership and foster next generation leadership.**

(#1 and #8 from the list above.) Action ideas include:

- a. Strengthen existing leaders and foster opportunities for leaders to create and communicate a compelling vision for the future of the region with community members.
- b. Foster the next generation of leadership.
- c. Cultivate leadership and mentoring opportunities with community members and local business leaders and students in elementary school through college, and engage them in the community.
  - i. Focus on opportunities to develop student leaders.
- d. Develop training and resources such as a regional leadership academy and celebrating successes.

#### **2. Cultivate entrepreneurs, and support and diversify existing businesses.**

(#2, #10, and #13 from the list above.) Action ideas include:

- a. Assess market trends and identify where existing businesses could expand and new businesses emerge, taking advantage of the technical skillset of unemployed

## GO VA Region One – Growth & Diversification Plan (August, 2017)

- or underemployed miners.
- b. Develop a business-to-business network to identify input or support needs that can be sourced locally to build the regional economy.
- c. Create an entrepreneurial ecosystem – create an environment with resources for new entrepreneurs and emerging businesses, including access to capital.
- d. Develop opportunities for smaller companies to partner with larger companies to meet and address the needs of one another.
- e. Connect farmers markets to grocers, school systems, hotels, hospitals, and food banks (gleaning "seconds" or produce that is still viable but cannot be sold).
- f. Leverage new opportunities for cattle, heritage breeds, and legacy farms, and connect to new markets.
- g. Recruit farm supply and packaging businesses into the area.
- h. Explore new ways of growing things and niche markets like hydroponics, maple syrup, heritage breeds, and tilapia.
- i. Identify the needs for entrepreneurs.
- j. Identify what is currently being done and who is doing it.
- k. Create capital by identifying funding and leveraging existing resources.
- l. Develop a prepared workforce.

### **3. Develop regional collaboration for workforce and education (including K-12), and expand, market and grow regional educational resources.**

*(#3, #8, and #12 from the list above). Action ideas include:*

- a. Promote, grow and market a high quality of life of SWVA.
- b. Tell and share the story of the SWVA's culture in a positive way.
- c. Promote the strength of SWVA culture and people to employers.
  - i. Promote regional outdoor recreation assets.
- d. Cultivate leadership and mentoring opportunities with community members and local business leaders and students in elementary school through college, and engage them in the community.
  - i. Focus on opportunities to develop student leaders.
- e. Develop training and resources such as a regional leadership academy and celebrating successes.
- f. Focus on youth in education and establish a pathway from kindergarten to career for workforce development.
- g. Focus on opportunities to educate the parents of children – combine school efforts with family support opportunities.
- h. Emphasize or expand trade and soft skills (such as communication and collaboration) in education.

### **4. Leverage broadband infrastructure to promote the ability to work remotely and grow information technology (IT) infrastructure and technology hubs.**

*(#4 and #6 from the list above.) Action ideas include:*



## GO VA Region One – Growth & Diversification Plan (August, 2017)

- a. Expand IT training opportunities.
- b. Promote quality of life factors to attract millennials.
- c. Include renewable energy opportunities to attract large companies.
- d. Promote the ability to work remotely with creating desirable communities and available broadband.
- e. Develop an inventory of “things to do” that would be attractive to young professionals. This could be marketed as: “Bring your own job with you and move to SWVA.”
- f. Develop funding and resources for K-12 grades in schools to hire a dedicated technology teacher (computer science).
- g. Promote openings that are available today and emphasize the available salaries.

### **5. Create a new identity for the region as a “culture of wellness”, and promote the region's high quality of life, assets and amenities through marketing and telling positive stories of the region.**

*(#5, #10, #14, and #15 from the list above.) Action ideas include:*

- a. Promote and grow a high quality of life of SWVA.
  - i. Market the existing high quality of life in the region as well.
- b. Tell and share the story of the SWVA's culture in a positive way.
- c. Promote the strength of SWVA culture and people to employers.
  - i. Promote regional outdoor recreation assets.
- d. Connect farmers markets to grocers, school systems, hotels, hospitals, and food banks (gleaning “seconds” or produce that is still viable but cannot be sold).
- e. Leverage new opportunities for cattle, heritage breeds, and legacy farms, and connect to new markets.
- f. Recruit farm supply and packaging businesses into the area.
- g. Explore new ways of growing things and niche markets like hydroponics, maple syrup, heritage breeds, and tilapia.
- h. Focus on health care development as these jobs can be high paying jobs as considered “low hanging fruit”.
- i. Grow awareness of and foster education in food systems, experiential food related businesses for a span of ages (K-gray) through activities such as field trips, train and the trainer opportunities.
- j. Create an “ecosystem” that illuminates opportunities, and change the perception that college degrees only yield more money and jobs – the trades can be lucrative.
- k. Create partnerships and symbiotic relationships that link industry with farms to manufacturing as well as to health and well fare.
- l. Create a digital ambassador program that creates a positive regional image. Create a network of people that are trained to share announcements built upon a consistent media theme and content, posting positive stories to counteract negative stories to build community support and excitement around regional assets.
- m. Designate one person to facilitate the process.
- n. Leverage business contacts nationally and globally, and target millennials and industries that value quality of life.



## GO VA Region One – Growth & Diversification Plan (August, 2017)

- o. Educate community members in general of the region's assets such as outdoor recreation, broadband, water, energy, land and labor.

### **6. Coordinate and focus workforce programs to align with industry and economic development targets.**

*(#11 from the list above.) Action ideas include:*

- a. Build credentials and certifications that are transferable between industries and geographic areas.
- b. Leverage the Virginia Economic Development Partnership (VEDP) strategic plan by targeting industry clusters.
- c. Establish connection with Work Ready Communities (WRC) to help businesses navigate programs and organize workforce needs.
  - i. Identify one WRC point of contact to help businesses navigate different programs. Focus on serving the “business”, not the educational institution.
- d. Develop industry clusters that can cross county and regulatory boundaries to provide support for specific industries such as equipment manufacturing, electrical equipment, and IT and cyber.
  - i. Engage economic development professionals.

## **Conclusion**

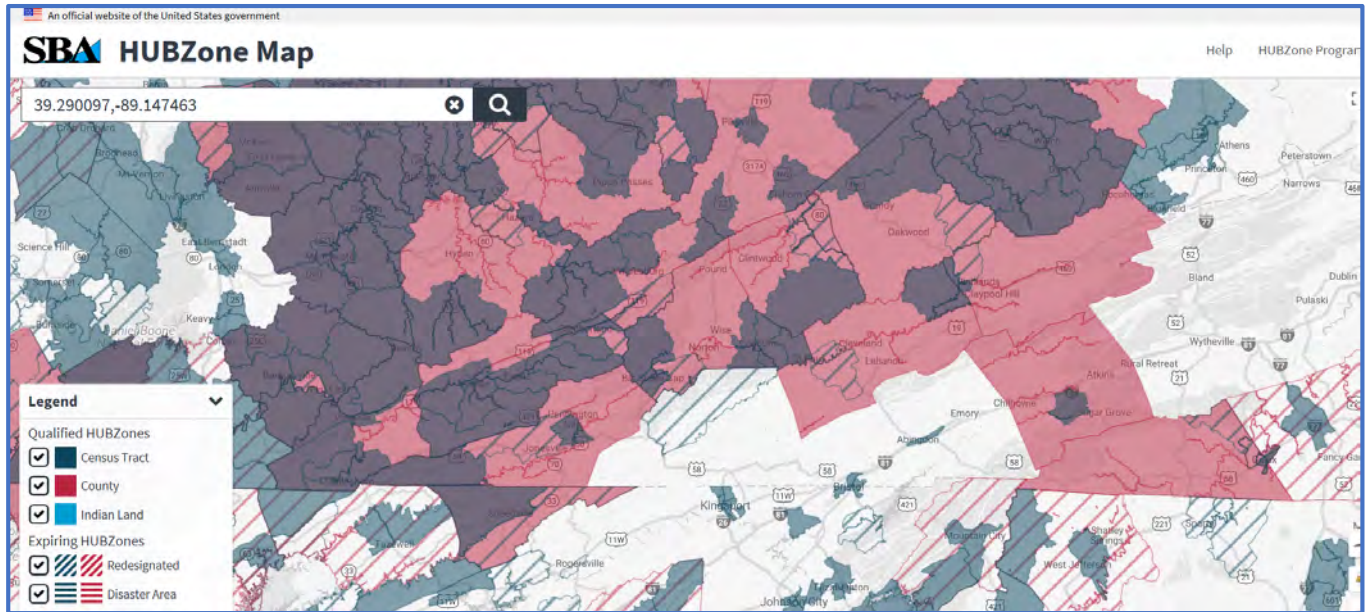
At the conclusion of each community meeting, participants were encouraged to share any additional ideas, thoughts, or examples of models that they were aware of with meeting organizers by email, or to sign up for continued engagement and communication in the GO Virginia effort. Shannon also noted that the Region One Growth and Diversification Plan would be complete by August 25<sup>th</sup>, and shared future meeting dates. These included Board meetings on September 7<sup>th</sup> at Wytheville Community College at 10:00 am, and on December 7<sup>th</sup> at Bluefield College at 10:00 am. Finally, participants were thanked for their participation and encouraged to hand in their handouts to share additional ideas and participant contact information.

## Appendix 8: List of Strategic Plans Reviewed

Nearly twenty previously developed strategic plans were analyzed and incorporated into the design of the GO Virginia Region One Growth and Diversification Plan. These included the review of economic development strategic plans as well as publications from planning districts within the GO VA Region One geography. Plans from neighboring localities in Kentucky, also in GO VA 1 labor shed, were part of the review process. Below is a listing of these strategic plans and publications:

- Appalachian Spring Strategic Plan (2014 Draft)  
Blueprint for Entrepreneurial Growth and Economic Prosperity in Southwest Virginia (April 2012) <http://aproject.org/resources/reports/#tab-blueprints>  
Blueprint for Attracting and Sustaining Advanced Manufacturing in Southwest Virginia (April 2014) <http://aproject.org/resources/reports/#tab-blueprints>  
LENOWISCO 2015 CEDS Report  
<http://lenowisco.org/reports-and-media.html>
- LENOWISCO Site Study
- Mount Rogers CED (December 2013)  
<http://www.mrpdc.org/news.htm>
- Mount Rogers SET – Stronger Economics Together (June 2016)  
<http://www.mrpdc.org/set.org/>  
Mountain Association for Community Economic Development (MACED) Kentucky 2016-2020 Five Year Plan <http://www.maced.org/>  
New River Mount Rogers Workforce Development Board  
<http://nrmrwib.org/about-us/documents-of-interest/strategic-plans/>
- Proposal to Develop an Agriculture Strategic Plan for the VCEDA Region
- Rapid Response/Power Update Strategic Work – Virginia Tech Office of Economic Development (June 6, 2017)
- SOAR Blueprint for Economic Growth – Eastern Kentucky  
<http://www.soar-ky.org/blueprint>
- The Southwest Virginia Alliance For Manufacturing, Inc. 2017-2018 Strategic Plan  
<http://swvam.org/>
- SWVA Economic Analysis Report (June 2014)  
<http://www.opportunityswva.org/wp-content/uploads/2017/02/Economic-Impacts-in-Southwest-Virginia-1.pdf>
- VA Rural Center – Partnership of the Center for Rural Virginia and the Council for Rural Virginia – Strategic Plan Assessment Report to the Virginia Tobacco Indemnification Community and Revitalization Commission (TIC)
- Virginia Coalfield Economic Development Authority (VCEDA) Business Plan (2017)
- VCEDA Lead Generation Project Review - Sanford Holshouser (2014)
- VCEDA Site Selection Study – Timmons Group (2016)
- Virginia Tech Workforce Analysis for Region One  
[http://www.swvawdb.org/wp-content/uploads/2017/01/Section-6-Tourism\\_Industry\\_Overview-\\_and\\_Competency\\_Analysis.pdf](http://www.swvawdb.org/wp-content/uploads/2017/01/Section-6-Tourism_Industry_Overview-_and_Competency_Analysis.pdf)

## APPENDIX 9: HUB ZONE MAP



Source: <https://maps.certify.sba.gov/hubzone/map#center=36.864065,-82.653173&zoom=9&latlng=39.290097,-89.147463>

